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WOMEN IN THE ENGINEERING TRADES

BY

BARBARA DRAKE.

TRADE UNION SERIES No 3.

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WOMEN IN THE ENGINEERING TRADES

A Problem, a Solution, and some Criticisms; being a report based on an enquiry by a Joint Committee of the Labour Research Department and the Fabian Women's Group.

BY

BARBARA DRAKE.

TRADE UNION SERIES No. 3.

LABOUR RESEARCH DEPARTMENT
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PREFACE.

The following report is the result of an enquiry by a Joint Committee of the Fabian Research Department and the Fabian Women's Group. But the members of the Joint Committee are not responsible for the views and opinions expressed by the writer of the main report or the writers of the several Memoranda, and only for those sections of the report signed by themselves. The writer of the main report desires to express her thanks to the Joint Committee in general and to Mr. F. S. Button, Mr. G. D. H. Cole, Mr. Kelly, Miss Susan Lawrence, Miss Mary Macarthur, and Mr. and Mrs. Sidney Webb in particular, for the generous assistance given her in collecting material and in other ways.

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INTRODUCTION.

The entry of women in the engineering trades is not a fact of recent date, although female labour remained practically confined to the Birmingham metal trades until the end of last century. Already in the forties, women form eighty to ninety per cent. of the workers engaged in the Birmingham screw trade, and are employed in stamping brass nails and other small metal ware. In 1866, a single pen factory in Birmingham engages, according to good authority, no less than 2,000 women. Meanwhile, the competition of "cheap female labour" causes the despair of the men's trade unions. Through the seventies and eighties, the Birmingham Brass Workers, the Nut and Bolt Makers, the Chain Makers, the Nail Makers, raise their voices in protest against the female invasion. At a conference held by the Women's Trade Union League after the Trade Union Congress, 1877, the Birmingham Brass Workers, whose trade was one of the earliest entered by women on account of the soft and malleable quality of the metal, stand out and refuse to support the objects of the League for the reason, that "to organise" is "to recognise" those presumptuous "females" who "turn at the lathe and file at the vice" in Birmingham, incidentally cutting out their own menfolk. The Nut and Bolt Makers appeal to the Trade Union Congress of 1884, "to stamp out the iniquitous system of female labour." A Chain Maker writes to complain in the local press how the women of the black country are "unsexed" to such a degree, that "when he himself is thoroughly exhausted his daughter can still go on." The Nail Makers implore even Parliament to restrict the women to "their own size of nail," although the size at which nail-making becomes "unwomanly" remains undetermined, owing to the variations in local practice.

However, the women's encroachment on the men's preserves remained practically stationary between the sixth and ninth decade of last century. The line of demarcation between the sexes had reached, perhaps, a point of temporary equilibrium in the small metal trades; while, in general engineering and machine shops, the work was unsuited to semi-skilled or unskilled female labour, owing to its skilled or heavy character. But, with the development of automatic machinery, a new influx of women began in the nineties. In the evidence before the Poor Law Commission, 1908, more than one trade union witness declares the displacement of male by female labour to form a principal cause of unemployment in the engineering trades: "The women are ousting the men in most trades, including the iron trades. Many

women are doing the light kind of drilling, &c., which used to be done by men. We have hundreds of them in Manchester now doing work that was formerly done by men on drilling machines. Women in the iron works were unknown a few years ago, but there are hundreds or thousands of them now." Again, in Lincoln, one of the chief centres of steam-engine manufacture: "Women and young persons are not much used, as the work is rather heavy, and custom and tradition is against their employment. This is, however, beginning to break down, and they are now employed in some small engineering shops." Birmingham and Coventry, the centres of the cycle and motor industry, report: "There are many machine shops where the work is principally done by women and girls. They are, of course, got at a much lower rate of pay." Women poured at the time into the electrical and other new and progressive trades. Telephone-making, surgical and other branches of scientific instrument-making, sewing-machine making, typewriter-making, became women's trades from the start, in up-to-date factories the women making the finished article practically throughout. The total number of women employed in the engineering and allied metal trades,* which rose only from 44,000 to 58,000 between 1861 and 1891, rose from 58,000 to 85,000 between 1891 and 1901, and from 85,000 to 128,000 between 1901 and 1911; while the rate of increase, lower for women than for men until 1891, became twice as high during the last two decades. And the female invasion had not reached its climax; according to an estimate of the Board of Trade,† the total number of women having risen again to 170,000‡ by July, 1914. In general engineering and machine shops alone, where the women's movement was least advanced, the number rose from 8,900 to nearly 17,000 during the same period, 1911 to 1914; although female labour was confined to "purely automatic" or boys' operations, and prohibited altogether by the trade unions except in less organised shops and districts. But the great centre of female employment remained in Birmingham. In the cycle and motor trades, the electrical trades, the brass trade, in the host of small metal trades including nut and bolt, screw, rivet, pen, pin, lamp, bedstead, fuse and cartridge-making, female labour was established already before the war on every variety of automatic or semi-automatic machine—capstan, press, milling, drilling, grinding, polishing, screwing, gear-cutting; the women performing whole series of operations of a light "repetition" character, and passing freely from one trade to another as "lathe" or "press" hands. However, men and women were seldom employed together on identical operations. Exceptions appeared in cable-making, exhausting, filament-winding and other processes in the electrical trades, in saddle and small part-making in the cycle and motor

---

* Including precious metal workers, &c.

† Board of Trade Report on Employment.

‡ The figure includes clerks.

trades, in brass-burnishing and polishing, brass core-making, fuse-stamping, cartridge-drawing; and women competed with boys as automatic machine-minders and "tracers." But the displacement of male by female labour followed as a rule on a simplification of process, a new automatic machine or mechanical appliance, a new sub-division of labour, permitting the employment of a less qualified or less robust class of worker; and as the women came in the men went out.

But the advent of female labour in the engineering industry was not an isolated phenomenon, and formed also a part of the larger problem of the semi-skilled worker. With the first expansion of a great industry, the mill-wright of the eighteenth century, who "handled the axe, the hammer and the plane with equal skill and precision," "built bridges, cut canals, and performed a vast variety of work now done by civil engineers," gave way to a new type of less consummate craftsman—the turner, fitter, erector, boiler-maker, pattern-maker, ironfounder, brassfounder, or coppersmith. Skill, although intensified, became less varied. The invention of the power-driven machine-tool brought again a new host of specialised machinists—the driller, shaper, borer, planer, slotter, hardener, grinder, taking the place of the all-round turner. With the development of automatic machinery, reducing to a minimum the skill or effort required in the operator, came a yet further division between the skilled "tool-setter" and the unskilled or semi-skilled "machine-minder," working only under supervision.* While the modern "specialised" machine factory, making a single type or single part of a machine, and displacing the old-fashioned general machine shop, showed another side of the same phenomenon. "I have had men working for over twenty years at the same little job," states a witness in evidence before the Poor Law Commission, 1908, "one forging nuts by machinery, another superintending a tapping machine, a third turning their ends, a fourth shaping their sides, another hardening them, and a last one polishing them after hardening. Thus six men, each doing day after day for many years, one portion of so small a thing as a simple screwed nut. The result of such specialisation is that skilled labour is displaced by unskilled, and adult men by women and young persons." †

Nor was the simplification of process without effect on the status of the worker. A prolonged expert training became unnecessary in order to enter the engineering trades. Apprenticeship disappeared for the rank and file of the workers. Indentures are at present comparatively rare; while an all-round training,

* The latest type of American automatic machine, which makes a whole article throughout and practically dispenses with human labour, shows another departure, the significance of which cannot, however, be estimated. The "machine-minder" disappears in this case, and only the "tool-setter" remains.

† Evidence before the Royal Commission on the Poor Laws and Relief of Distress, published 1910.

during which the apprentice passes in turn through each department from the "office" to the "tool-room" and acquires a thorough knowledge of his trade, tends to be reserved by the employer to a select number of youths destined for promotion. On the other hand, the foreman or supervisor tends to be only a second-rate craftsman, and develops other qualities as "organiser." An all-round knowledge and experience is still required in general engineering shops, where the trade is various in character and the worker passes continually from one job to another, or each job includes a wide variety of separate operations. The highly-skilled but highly-specialised mechanic, employed in the "tool-room," needs again, if not an all-round training, a considerable and varied practice, in order to develop his talent. But the great body of simple "repetition" operations, a man or woman of average intelligence learns in a few days, a few weeks, a few months, and the youth enters the trade as he can, starting on a simple automatic machine and passing on afterwards to more difficult operations as he gains in skill and experience. Meanwhile, the decay of apprenticeship destroys the old monopoly once enjoyed by the regular workers of the trade, who become more and more exposed to the competition of illicit tradesmen; while the growing divergence in education and outlook between the foreman and operative reduces to a minimum the opportunity of the latter for promotion. Already in 1885, the Amalgamated Society of Engineers decided to relax its rules and admit the unapprenticed tradesman to membership, provided he earned the trade union rate of wages; and the Society has continued since that date to open its doors to less and less qualified classes of workers, until the unskilled labourer or assistant was admitted to Class F in 1914.* The workers employed in the engineering industry fall at present into four distinct groups, although one group merges into another, and the line of demarcation between the skilled and semi-skilled or unskilled worker shifts continually with the progressive simplification of process, and relative strength of capital and labour.†

(1) *The fully-qualified tradesman*, who has served a five or seven years' apprenticeship‡ and secures the full trade union rate of wages. He is employed on "all-round" work, and also on "repetition" work of too skilled or responsible a character to be learned readily or entrusted to any but a skilled worker, having a trained "machine-sense" and intelligence. Group (1) includes as well the foreman, "rate-fixer," "tool-setter" and other workers promoted to superior posts.

* The latter decision was, however, revoked by a Delegate Meeting of the Society in January, 1917. The position of the unskilled assistant in the Union was always anomalous, the Class F member having no vote.

† Thus the result of the last great dispute 1897-98 conceded to the management the right to employ unskilled labour on certain simple machines in federated shops, and one skilled man in charge of more than one machine.

‡ The shorter period is common in Scotland, where the skilled tradesman is more specialised than in England.

(2) *The skilled tradesman*, who has served no apprenticeship, but secures, nevertheless, the full trade union rate of wages. He is employed on similar work to the fully-qualified tradesman, being qualified on a comparatively wide range of operations, although he is less often promoted. Groups (1) and (2) included already before the war only a minority of the workers of the trade, but the large body of organised labour.

(3) *The semi-skilled mechanic*, who has served no apprenticeship, nor secures the trade union rate of wages. He is employed mainly on repetition work, and qualified only on a comparatively narrow range of operations, working under skilled supervision. Nevertheless, he shows a more or less high degree of manipulative skill, and works the tools " as well as minds the machine."

(4) *The unskilled assistant*, who is recruited from the ranks of general labour, and earns a labourer's rate of wages. He is employed only on " purely automatic operations," or as assistant, and although he " minds the machine " does not " work the tools." Groups (3) and (4) included already before the war a growing majority of the workers of the trade, but only a small section of organised labour.

Groups (3) and (4) included also before the war a growing proportion of women, although confined in Group (4) to certain women's trades, the development of automatic machinery and sub-division of labour opening the door to a less robust as well as a less qualified class of worker. Groups (1) and (2) remained on the other hand reserved entirely to men. For no woman served an apprenticeship, and no woman secured the trade union rate of wages. A young girl, expecting to leave her trade on marriage, is not inclined to undergo a five or seven years' course of training, or her parents to encourage her, while her employer is as disinclined to train her. And no woman earned the trade union rate of wages, although not a few women employed as " machinists," " assemblers," " examiners," in women's trades, performed operations belonging to a category classed as " skilled " in men's trades, and performed by " skilled " tradesmen earning the full trade union rate of wages.

For the female worker, although forming a part of the problem of semi-skilled or unskilled labour, shows also distinct phenomena of her own ; the men discovering, on the one side, a new and dangerous competitor in the female blackleg, and the employer, on the other side, a new and profitable supply of labour, cheap and docile as boy labour, less exacting and more reliable. Nor was the employer slow to seize his advantage. The semi-skilled or unskilled character of women's trades, and absence of trade monopoly ; the " meantime " character of female labour, leading a woman to attach less importance than a man to trade conditions ; the consequent less effective trade union organisation,

aggravated by the lack of political power; the tradition of the "pocket-money worker," or "other means of subsistence"; the low standard of living accepted by a woman and small value set by herself on her own labour—a modesty derived from a time, perhaps, when she acted only as the unpaid assistant of her father or husband; one factor reacts on another, and female labour stands a ready prey to exploitation by the employer. At each displacement of male by female labour, the men's rate was reduced by about one-half, or out of all proportion to any proved deficiency in the women's productive value; while new fields of industry entered by women became "sweated" trades from the start. Great fortunes were built up on female industry, and capital followed the trail of cheap labour. Women's processes, women's trades, supplanted the men's, for no other reason than the saving in wages to the employer. In the Birmingham metal trades, a wage of 10s. or 12s. a week was common for an adult woman and a wage of 15s. was high. Telephone, sewing-machine, type-writer-making, the small ammunition trades, fuse and cartridge making, gun-engraving, gun belt making, were notorious as "2½d." trades, and included by Miss Mary Macarthur among the worst "sweated" trades in her evidence before the Select Committee on Home Work, 1907. And, because the degradation of the men's standard of living to a "sweating" level followed invariably the admission of female labour to the trade, each advance by the women was strongly opposed by the men's trade unions.

The policy of the trade unions was no doubt influenced by other causes. The qualified tradesman objects in every trade to see his trade over-run by a body of semi-qualified or unqualified competitors. The average engineer is also not a feminist, and, whatever his theory as to women in general, he objects in practice, even as other men, the average doctor or lawyer, man in the street or member of parliament, to an actual woman in his particular work-shop. "I have to bear with a woman for twelve hours of the day and I will not bear with women for twenty-four," an aggrieved tradesman declares, and his view forms the one point of sympathy between himself and his employer. But, although the average trade unionist is neither an altruist nor a feminist, the root of his objection to admit women to the trade lies against blackleg and not female labour. The men's trade unions refused for the same reason to admit women to membership. The Amalgamated Society of Brassworkers, whose members were among the earliest to suffer from female competition, persisted in the refusal to recognise female labour, notwithstanding the failure of the policy to drive women from the trade, or check their advance. The Amalgamated Society of Engineers adopted a similar policy, and the door remained closed to women, although opened to the semi-skilled male mechanic and unskilled male assistant. But the problem was less immediate or acute for the Amalgamated Society of Engineers than for the Birmingham Brassworkers. The women had not entered into general engineering shops, except

in less organised shops and districts, and competed only with boys as automatic machine "minders" or "tracers"; while other trades, invaded by female labour from the start, became accepted by the men as women's trades, although the practice varied between one district and another. For instance, fuse and cartridge-making were recognised as women's trades in Birmingham, Coventry. Newcastle, and not in Sheffield or Woolwich Arsenal. Moreover, the Amalgamated Society of Engineers, whose 200,000 members included a large proportion of the skilled men of the trade, formed a power to be reckoned with. An important armament firm, introducing women in shell-making a few years before the war, was compelled by the trade union at once to give up the experiment. Other engineering unions followed the same or a similar policy.* The small metal unions, the Chain Makers, Nail Makers, Nut and Bolt Makers, Bedstead Makers, Pen Makers, in despair at the ineffectual struggle against cheap female labour, sought a compromise, and tried to organise women with a view to confining them to certain branches of the trade. But the policy was not more successful, and the efforts to organise women remained sporadic, except with the Chain Makers, who formed a women's branch in 1906, transferred to the National Federation of Women Workers in 1909. On the other hand, the general labour unions, whose male members had little or no vested interest in any one particular trade, discovered little or no objection to female labour and admitted women to membership on equal terms with men. The Workers' Union and the National Union of General Workers, each included a proportion of female machine and metal workers before the war, although the women played no actual part in the management. But the National Federation of Women Workers was the chief representative of women in the engineering trades, and included before the war four branches of munition workers in the Newcastle, Edmonton, Woolwich, and Erith districts, in addition to the flourishing branch of Black Country chain makers. The small society of Female Electrical and Machine Workers, established 1889, represented women in Manchester, but the membership failed to reach 100. The total number of organised women in the engineering and allied metal trades before the war was probably not more than 3,000, of whom the large body belonged to the National Federation of Women Workers.

The problem of women in the engineering trades, although not yet acute, dates then from before the war, and a struggle had begun already between the employers and the trade unions, showing, on the one side, the determination of the employer to exploit for profit a new and unlimited supply of cheap and docile female labour, and, on the other side, the equal determination of the trade unions to resist the encroachment of the blackleg and "sweated" woman worker and progressive degradation of the men's standard of living.

* The Electrical Trades Workers decided to admit women to membership in 1915, after the outbreak of the war, but the female membership did not rise above a score in 1917.

THE STORY OF THE DILUTION OF SKILLED LABOUR.

(From the Outbreak of War to April, 1917.)

A shortage of skilled men in the engineering industry, aggravated by the large number of mechanics permitted or encouraged to enlist during the short period of unemployment following immediately on the outbreak of war, appeared already with the rapid expansion of the munition trade in the autumn, 1914. An influx of women took place at the same time, although confined at first to simple automatic or boys' operations, and in those districts where female labour was recognised by the trade unions, or at least tolerated, before the war. But a new situation arose in October, when a leading armament firm introduced a number of women to take the places of skilled or semi-skilled men in shell-making, at rates of wages reduced in the usual way by 50 per cent. No notice was given to the trade unions, still less were they in any way consulted, and the members saw a high-handed and unfair advantage taken of the war by the firm in order to break down trade union practice and cut the rate. The Amalgamated Society of Engineers, the interests of whose members were principally concerned, made a strong protest. A Conference was arranged with the Employers' Federation and in November the two parties came to a preliminary agreement, known as the Crayford Agreement, the terms of which are as follows :—

> " (1) It is not the intention of the firm to give the work of skilled men to female labour.
>
> (2) All machines requiring adjustment of tools by the operator, either before or during thc operation, shall be operated by male labour.
>
> (3) Female labour shall be restricted to purely automatic machines used for the production of repetition work.
>
> (4) A purely automatic machine is a machine which, after the job has been fixed, requires no hand adjustment until the operation is finished. All such automatic machines shall be set up by fully skilled mechanics.
>
> (5) Lathes used for turning, screwing, and for boring of shells shall be operated by male labour.
>
> (6) The foregoing shall be observed until the termination of the war, when the whole question shall be discussed, if desired, without the foregoing settlement being argued to the prejudice of either party."

The agreement continued the policy followed by the Amalgamated Society of Engineers, tacitly if not explicitly, in certain districts before the war. Female labour is restricted to "purely automatic operations." Nevertheless, the men immediately concerned make a real concession in overcoming their objection to female labour, and in admitting women for the first time in shell-making.* No corresponding concession is made by the firm, which continues the practice of employing women at blackleg and sweated rates of wages.

But the Crayford agreement, whose operation was in any case local only, failed to meet the growing shortage of skilled labour. The transformation of a great industry from the complex uses of peace to the simpler uses of war, with the consequent demand for vast quantities of standardised articles, by extending the area of repetition work, offered at the same time new opportunities for the employment of semi-skilled or unskilled labour. Further concessions were required by the employers from the trade unions; and with this object in view, the Employers' Federation approached in December the engineering unions principally concerned, the Amalgamated Society of Engineers, the Amalgamated Toolmakers' Society, the Steam Engine Makers, the United Machine Workers' Association, and the Scientific Instrument Makers, with a request for a general relaxation of trade union rules and regulations for the period of the war, in return for a general assurance on the part of the Federation to observe the standard rates of wages, and to return afterwards to the pre-war conditions. But the trade unions, although willing to consider concessions on particular points, were not prepared to throw down the whole of their defences, and leave the workers at the mercy of the employers, without stronger safeguards than a general assurance on the part of the Employers' Federation, whose members represented besides only a section of the employers. The trade unions replied with certain counter proposals† for increasing the supply of skilled labour; but the latter were rejected in turn by the employers, and the negotiations accordingly broke down.

* As we have seen, an attempt a few years ago to introduce women into shell-making was resisted successfully by the trade unions.

† These counter-proposals put forward by the trade unions, although rejected by the employers, became subsequently adopted by the Government almost in entirety. The proposals were as follows:—

"(*a*) Firms not engaged in the manufacture of war goods to be given such work.

(*b*) Firms that are at present working 'short time' to transfer their workmen to firms engaged in Government work.

(*c*) Joint representations to be made to the Government to pay subsistence allowance money to men working in places at a distance from their homes.

(*d*) That the Government draft skilled engineers from Australasia, Canada and South Africa.

(*e*) In view of the fact that 10,000 skilled engineers have recently enlisted, thus reducing the supply of skilled labour, the Government should withdraw from military duties all those available for industrial purposes." (*Labour Year Book*, 1916, p. 54.)

However, in February, 1915, the Government appointed a Committee on Production in Engineering and Shipbuilding establishments to enquire and report as to the best means of making fully available the productive power of the workers. The Committee issued in the same month a series of reports including one on "shells and fuses," with the following reference to female labour :— 'We are satisfied that in the production of shells and fuses there are numerous operations of a nature that can be, and are already in some shops, suitably performed by female labour. We recommend that in order to increase the output there should be an extension of the practice of employing female labour on this work under proper and suitable conditions." The recommendation was circulated at once to the employers and the trade unions, who reopened in March negotiations on these lines, with the result of the important agreement known as the Shells and Fuses Agreement. The provisions, which give full facilities for the admission of non-union or semi-skilled labour to shell and fuse making under certain conditions during the period of the war, include the following references to female labour :—

"Operations on which skilled men are at present employed, but which, by reason of their character can be performed by semi-skilled or female labour may be done by such labour during the war period."

"In the event of semi-skilled or female labour being employed as per the foregoing clauses they shall first be affected by any necessary discharges either before or after the war period."*

The agreement, which is national in scope, marks also a new policy. The trade unions admit female labour for the first time on other than "purely automatic operations," but secure in return a definite concession from the employers, who agree to pay "the usual rates of the district for the operations performed," to all women employed in the place of *skilled tradesmen*. The satisfaction of the trade union leaders is expressed in the current journal of the Amalgamated Society of Engineers :—"A careful perusal of the memorandum will reveal that complete and adequate safeguards have been assured and that the concessions thus granted are for the period of the war only." But the weakness of an agreement lies less in what is said than in what is left unsaid. The reference was unfortunately confined to women employed in the place of *skilled* men, no mention being made of women employed in the place of *semi-skilled* or *unskilled* men. The oversight was serious. In the first place, the large majority of workers employed before the war in shell and fuse factories were semi-skilled or unskilled men ;† and, except in the tool-room, the skilled

* Monthly Report of the Amalgamated Society of Engineers, April 1915.

† Except in Sheffield, shell-making was practically a semi-skilled trade, although a number of skilled men transferred to shell-making during the early months of the war. Shell and fuse making were classed definitely later by the Ministry of Munitions as semi-skilled trades.

tradesman was employed only as " tool-setter " or supervisor ; while, in the second place, a readjustment of the process was almost inevitable in the comparatively rare instance of an inexperienced woman taking the place of a skilled tradesman. But the result appeared immediately. Not one in a thousand of the scores of thousands of women introduced into shell and fuse factories proved a claim to take the *whole* place of a *fully-skilled tradesman*. Wisdom is easy after the event. The subordinate part played by semi-skilled or unskilled men in controlling the policy of the trade unions concerned, accounted in part, perhaps, for the disregard of what appeared to be only semi-skilled or unskilled interests. But the leaders were also patriotically anxious to comply with the request of the Government and come to terms with the employers ; and a clause securing " the usual rates for the job " to women employed in the place of semi-skilled and unskilled men, or to any except a small minority of women employed under exceptional circumstances, would almost certainly have been refused by the employers. The intention of the Employers' Federation was clear, and appeared within a few days of the signing of the agreement in the following note issued to its members :—" Female labour undertaking the work of *semi-skilled or skilled men* shall be paid the recognised rates of the district for *youths*, on the operations in question." A letter to the same effect was addressed to the trade unions with a slight modification :—" Female labour undertaking the work of *semi-skilled and unskilled men* shall be paid the recognised rates of the district for *female labour* on the operations in question." This is to say, the women were to be paid a standard varying round about 2½d. an hour, or conspicuous only by its absence. The Amalgamated Society of Engineers replied to the communication, which appeared to the members as a plain travesty of the agreement :—" Female labour undertaking the work of *semi-skilled or unskilled men* must receive the rates paid to the men they displace."

Meanwhile the Government decided to give an official and more comprehensive character to undertakings entered into by the employers and the trade unions in order to check disputes during the war. Therefore, Mr. Lloyd George, Chancellor of the Exchequer at the time, summoned in March, 1915, a conference of the workers at the Treasury composed of the representatives of 33 principal trade unions directly concerned in the output of munitions of war. The only important union forgotten was the National Federation of Women Workers, whose 20,000 members included already several branches of women munition workers. Mr. Lloyd George outlined the terms of an agreement, following which a sub-committee was appointed, including representatives of the principal engineering unions, who drew up the famous Treasury Agreement, forming afterwards the basis of the Munitions of War Act, and subscribed to by the Conference.

The agreement falls into two parts. In the first part, stoppages of work are discouraged, and arbitration is substituted for strikes and lock-outs. In the second part, the trade unions undertake to give a " favourable consideration " to " such changes in working conditions or trade customs as may be necessary with a view to accelerating the output of war munitions or equipments," while the Government undertakes in return to impose certain conditions on the employers, the following of which applies to the admission of semi-skilled or female labour :—

" The relaxation of existing demarcation restrictions and admission of semi-skilled or female labour shall not affect adversely the rates customarily paid for the job."

The Amalgamated Society of Engineers, the interests of whose 200,000 members were especially at stake, and whose leaders refused at first to fall in with the others and subscribe to the agreement, secured in addition an important memorandum, including an assurance : " That the Government will undertake to use its influence to secure the restoration of previous conditions in every case after the war."* The satisfaction of the trade union leaders is expressed once more in the current journal of the Amalgamated Society of Engineers :—" To avoid even the possibility of defeat, the Government has been urging the relaxation of trade union restrictions. These restrictions are necessary in order to safeguard the standard of life of the skilled workers. Any relaxation of these economic safeguards must be jealously controlled in the interests of the workers. Yet, when the interests of the State are involved, relaxations may become necessary. The policy of your officials has been : no relaxation of trade regulations until good and satisfactory cause is shown for its necessity. It is because good and satisfactory cause has been shown that the memorandum arising out of the Conference with the Chancellor of the Exchequer has been signed. The best safeguards possible have been got. Our members should follow the lead of their officials. . . . This is not a time for industrial strife, but unity of purpose." The agreement was ratified by a ballot of the whole of the members.

But the pitfalls hidden in a clause, whose terms were not exactly defined, appeared immediately. The large body of women, employed already on men's work at women's wages, and whose interests were not directly represented at the Conference, wished naturally to know the practical effect of the Agreement.† Therefore, Miss Sylvia Pankhurst, Secretary of the East London Women's Suffrage Federation, wrote to Mr. Lloyd George, and asked for an exact interpretation of the words :—" the admission of female

* The additional memorandum secured by the A.S.E. includes also an undertaking from the Government to limit the profits of contractors.

† The Workers' Union and other societies attending the Treasury Conference included a minority of female members, but the women took no actual part in controlling the policies of the unions.

labour shall not affect adversely the rates customarily paid for the job." Mr. Lloyd George replied :—" The words which you quote would guarantee that women undertaking the work of men would get the same *piece-rate* as men were receiving before the date of the agreement. That, of course, means that if the women turn out the same quantity of work as men employed on the same job they will receive exactly the same pay." The *piece-rate* only and not the *time-rate* was included, although no distinction of the kind was clear before to the workers. The interpretation knocked the bottom out of the Treasury Agreement, so far as concerned at least the protection of the rate " customarily paid for the job " against the admission of female labour.

For, although a piece-rate is customary in the engineering trades on " repetition " machine operations, the workers rely nevertheless on a guaranteed time-rate or day-rate, in order to safeguard the standard on piece-work as well as on time-work.* The piece-rate lies otherwise too open to abuse by the unscrupulous employer, determined to secure a piece-work effort at a time-work wage, and discovering an occasion to reduce the piece-rate with each effort made by the worker to raise his earnings above the time-work level. Nor is an occasion hard to discover in the constant readjustment of processes incidental to a progressive and varied trade. A mere alteration in the number of a drawing is sometimes excuse enough to cut the piece-rate. " What can one do when a girl is earning as much as 15s. a week but lower the piece-rate ? "† This remark made by a foreman in defence of a breach of the Particulars Clause under the Factory Acts to a woman factory inspector, expresses a not uncommon attitude of the employer. A provision, securing only the piece-rate and not the time-rate, offered then no protection at all to inexperienced workers introduced in the trade during a period of extraordinary upheaval. Moreover, the employer stood under no obligation to employ the women on piece-work at all, although the system was recommended by the Government in order to speed up output. A large number of women, " gaugers," " examiners," " labourers," taking the places of men, remained necessarily time-workers owing to the character of the work ; while the leading armament firms, employing already many thousand women in shell-making, adopted for preference the *premium bonus system* for workers employed on repetition machine operations.

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* A piece-work price list, as in the cotton industry, appears impracticable on *non-repetition work* ; while, on *repetition work*, the workers are to a large extent unorganised and in no position to reach a satisfactory agreement with the employers. The trade union opposition to piece-work formed also a factor in the failure to develop adequate safeguards against the cutting of the rate. However, in certain organised shops and districts, piece-workers secure a guaranteed minimum of time-and-a-quarter or time-and-a-third.

† Annual Report of the Chief Inspector of Factories and Workshops, page 49, 1915.

The system is a hybrid between a piece and time-rate; the worker being guaranteed first of all a fixed time-rate or basic rate at so much an hour, and is paid in addition a bonus on output estimated by the employer in the following way.* A certain number of hours, or *basis time*, is allowed for the job. The worker finishing the job in just this time, or failing to "make time," receives only the basic rate. But the worker, finishing the job in less than this time, or "saving time," receives in addition a bonus on output or premium bonus, equivalent to one-half or other fixed proportion of the basic-rate for each hour so saved. The premium-bonus system differs from an ordinary piece-rate system in that the worker is paid for only a portion instead of for the whole of the time he saves by his additional effort, and is objected to by the trade unions for this reason. The employer extracts, in fact, from the worker a piece-work effort at a time-work wage, without the odium of reducing the piece-rate.† And a new objection was discovered by the workers with the admission of female labour. The employer who hesitated to break the letter of the law and cut the piece-rate, felt no compunction in cutting the time-rate in view of the interpretation given by Mr. Lloyd George to the Treasury Agreement. Thus, the same number of hours was allowed for the job, the "premium bonus" was fixed in the same proportion to the time-rate, but the time-rate was reduced by 50 per cent.; and the women's earnings fell to just one-half the earnings of the men, although the output of each was exactly the same. Meanwhile, the employer observed every injunction made by Mr. Lloyd George. The women were employed on piece-work, and only the time-rate was changed.

The Treasury Agreement remained then as much a dead letter as the Shells and Fuses Agreement, so far as concerned the protection of the rate "customarily paid for the job" against the admission of female labour. Nor was a shred of value to the worker left undisputed by the employer. At a Conference held in July between the Employers Federation and the Amalgamated Society of Engineers the employers raised two new points. "Take

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* The premium bonus system takes many forms. The above description shows a common instance in shell and fuse factories.

† The effect of the premium bonus system is shown in the following table taken from the Report of the Joint Committee of the Trade Union Congress on the Premium Bonus System. (*Note*.—The time allowed for the job, or "basis time," is 64 hours. Fractions of an hour are ignored):—

Time taken.	*Time saved.*	*Time allowed.*	*Hours paid for.*	*Sum earned for the job on a 36s. weekly rate.*
50	14	64	61	45s. 9d.
43	21	64	57	42s. 9d.
40	24	64	55	41s. 3d.
36	28	64	51	38s. 3d.

The text adds, "If the workman saved no time, and took the full allowance of 64 hours, he would get 48s. for the job, with probably a reprimand and possibly his discharge."

an absurd case; that we put a woman on a machine where she displaces a skilled man. You could not by any stretch of the imagination pay that woman the same amount per *piece* * as you pay the man, because the man may make ten pieces a day when the woman would make you two. . . . Although usually a woman is getting less wages, the shell may cost more in the tool-room and in working expenses on the lathe than it would if a man were getting more wages and producing more shells "† The argument deserves the consideration of the workers, although no reference appears to an " equal productive value " in the terms of the Shells and Fuses Agreement. The other point raised by the employers is as disingenuous as ingenious. " Suppose the lathes and machines are at liberty and you cannot get people to work them, you are then not displacing skilled labour, if skilled labour is not available to work them." The argument can scarce have convinced even the speaker. But the true mind of the employer is expressed in a leading article of *The Engineer*.‡ " The fact of the matter is really not that women are paid too little—or much too little—but that men are paid too much for work which can be done without previous training. High wages are paid on the false assumption, now almost obscured by trade union regulations, that it takes long to learn the craft. Everyone knows now, as all managers knew long ago, that no long period of training is necessary, and the whole argument of high wages, based on long training, has been carried by the board."

The trade unions were not unnaturally disinclined to make new concessions without new safeguards. A circular issued by the Government, August, 1915, urging employers to introduce women on a variety of operations in tool-making, including non-repetition lathe work, met with such determined resistance from the trade unions as compelled the Government to withdraw the circular. The trade unions also resented the action of the Minister of Munitions in issuing a circular recommending important changes without previous notice to the trade unions, contrary to the provisions of the Munitions of War Act. During the summer and autumn, 1915, the admission of female labour remained practically confined to shell and fuse-making, except with regard to " purely automatic operations."

Meanwhile, the unprotected position of the woman munition worker drew the attention of women's societies. The small ammunition trades, employing female labour before the war, were " sweated " notoriously. A rate of 2½d. an hour was common for an adult woman ; and the low rate of wages, aggravated by the rise in the cost of living, threatened in the absence of adequate safeguards to extend into the men's trades now opened to women.

* The italics are added.

† The argument forms an interesting comment on the premium bonus system, by which the piece-rate is reduced in direct proportion to an increase in output.

‡ *The Engineer*, October 1915.

The relaxation of the Factory Acts and high pressure to speed up output, exposed the workers at the same time to exceptional hardship. The Home Office orders, relaxing the legal restrictions on female labour with regard to overtime, nightwork, and Sunday work laid down certain definite regulations. Overtime was limited to 7½ hours a week, and the total hours of work to 14 a day, including meal-times; nightwork was prohibited to young girls under 16 years of age; Sunday work was confined to night-shift. But a wider latitude was permitted to the leading armament firms. A week of 73½ hours, net, was sanctioned by the Home Office, in more than one factory, while permits were granted to employ women on Sunday, and children on night-work. Not a few employers gained, in fact, the impression that the Factory Acts were in complete abeyance; while the handling of poisonous substances in high explosive and aircraft manufacture brought new risks to health, with sometimes fatal results.

But the matter came to a head in March, 1915, following the ill-considered action of the Board of Trade in inviting women of all classes to register for employment at the labour exchanges, although 30,000 industrial women were unemployed in London alone at the time. The War Emergency Workers' National Committee took the lead, and summoned a large and representative Women's Conference including women's trade union, socialist, co-operative, suffrage, or kindred bodies, and presided over by Miss Mary Macarthur. The Conference passed a number of considered resolutions. "No emergency act should be allowed unnecessarily to depress the standard of living of the workers or the standard of working conditions," the necessity being emphasised for women to join their appropriate trade unions, and stand out for the principle of "equal pay for equal work." The Conference claimed besides an adequate living wage and protection against "sweating" for all women engaged on war service, whether employed on men's or on women's work; proper training facilities, including a maintenance grant of a pound a week; security for women war workers against unemployment after the war, and the representation of working-women on the recently appointed Labour Advisory Committee, and on Courts of Arbitration.

The Manchester and Salford District Women's Interests Committee, including representatives of local women's societies and trade unions, started May, 1915, a campaign with a similar purpose; the Committee carrying out without delay a detailed enquiry into local conditions,* and drawing up as a result a practical programme for women munition workers, the principal demands of which were a minimum wage of £1 a week of 48 hours for all women over 18 years of age, and an eight-hour day. The Women's Co-operative Guild, the Women's Labour League and other bodies representing working women, became active for

* "Women in the Labour Market during the War," issued by the Manchester and Salford District Women's Interests Committee, 1915.

similar objects. Nor was the agitation of the women's societies without effect, and drew a new assurance from Mr. Lloyd George. "The Government will see that there is no sweated labour. . . . . We cannot offer the same time-rates, but the piece-rates we can fix as well as a fixed minimum wage, which will guarantee that we shall not utilise the services of women merely to get cheap labour." Still the Government gave no sign of carrying the intention into practical effect.

"God helps those who help themselves," and Cabinet ministers observe the rule. The Women's Trade Union League and the National Federation of Women Workers, realising from the start the necessity of organising women munition workers, commenced a special campaign with this object as early as March, 1915, under the direction of Miss Susan Lawrence, L.C.C. The Federation included already before the war four branches of munition workers, and new branches were opened in a number of important munition centres, including Woolwich, Erith, Barrow, Glasgow. The membership rose by thousands within a few months. Nor were the members slow to secure advances in wages; and obtained a war bonus of 1s. or 2s. a week, a rise of ½d. or 1d. an hour, amounting sometimes to as much as 5s. a week for piece-workers, together with shorter hours of work and various improvements in working conditions, in one factory after another. The Federation gained even the recognition of Mr. Lloyd George, appointed Minister of Munitions, a representative of the women's union being invited this time to attend the trade union conference summoned in June, 1915, in order to agree to the provisions of the Munitions of War Act.

The Federation entered at the same time into an informal alliance with the Amalgamated Society of Engineers. The men's union considered a motion to admit women to membership at the Triennial Delegate Conference, May 1915. The Society had already opened the door to one class after another of semi-skilled men, admitting finally unskilled labourers and assistants, and the motion followed the same policy of "union by industry." But the old prejudice of the members against female labour remained too strong; and the members rejected the motion by a large majority. The men, although prepared to admit women to the trade for the period of the war, were not prepared to extend the concession beyond, and foresaw an obvious difficulty in excluding afterwards from the trade women who were members of their own trade union. Nevertheless, the leaders on each side were alive to the immediate need for a common policy, and advantage to be gained by mutual support. The men had done yeoman's service already in helping the women to organise; and in June, 1915, the two Societies entered into an informal alliance, determining to set up central and local joint committees for the purpose of fixing rates of wages for female labour; while the Amalgamated Society of Engineers undertook to assist and support the women's union in enforcing the demands jointly agreed upon.

But the trade unions were also determined to force into practical effect the pledges given by Mr. Lloyd George to the workers with regard to female labour; and, in August, 1915, a deputation organised by the Amalgamated Society of Engineers and the National Federation of Women Workers, and including representatives of the principal engineering unions and the Manchester Women's Interests Committee, waited with this object on the Minister of Munitions, and put forward the following proposal:—

"Women over 18 when employed on any operation in connection with Shells and Fuses and all work in engineering establishments on munitions of war which necessitates machine operations for which tools and the setting up of machines is performed by skilled or semi-skilled labour shall receive not less than £1 per week for a normal working week as recognised prior to the war, except where such work prior to the war has been recognised as women's work by the Amalgamated Society of Engineers and Allied Trades in the district or districts concerned."

A demand for a minimum rate of £1 a week, confined to women employed on work "not recognised as women's work before the war," appears, perhaps, at first sight illogical. The whole body of women munition workers have an equal claim to a living wage; while women employed on work "customarily done by men" have a claim, besides, to the rate "customarily paid for the job," which claim is not met by a minimum wage of £1 a week. But trade union leaders, like other politicians, have to consider expediency as well as logic, and the proposal had at least the advantage of practical effects. A minimum wage of £1 a week, although confined to women employed on work customarily done by men, formed a substantial advance in wages for a large body of workers, and set an example to be followed by other women; while the raising of the low standard of women's wages to a level nearer the men's, by bridging part of the gulf between the two, lessened the problem of the trade unions. The new definition invented for the old term "work customarily done by men" showed, besides, a stroke of genius. The new term, "work not recognised as women's work before the war," covered every possible re-adjustment of process, as well as the new processes established since the war in men's trades. But the Minister of Munitions found a proposal having practical effects another matter to endorse than a general pledge. Dr. Addison, who received the deputation, expressed his sympathy with the objects of the trade unions. Women ought not to be underpaid. The danger of depressing men's wages ought to be guarded against. But, unfortunately, the Minister of Munitions had no legal power to fix rates of wages, except in factories controlled by himself.

Meanwhile, the irritation of the workers at the loose dealing of the Government—to put it mildly—became aggravated again by the harsh operation of the Munitions of War Act. The pro-

visions of the Act, embodying the Terms of the Treasury Agreement and prohibiting strikes or lock-outs and substituting arbitration, acted inevitably in the interest of the employer as against the worker. No employer desires a lock-out during a boom in trade; while a shortage of labour offers a good opportunity for a strike. Moreover, arbitration was slow and uncertain in effect; and inexperienced women, without either strong organisation or political power, fared worse than others. The award was delayed month after month, and not made retrospective; while the rate of wages fixed by a Government arbitrator was sometimes as low as twopence three farthings an hour for adult workers. But the arbitrary provisions of the Act, restricting the personal freedom of the worker in moving from one factory to another, caused the chief sense of injustice. Clause 7 of the Act lays down "that a person shall not give employment to a workman who, within the previous six weeks . . . has been employed in or in connection with munition work,* . . . unless the workman holds a certificate from the employer by whom he was last so employed that he left work with the consent of his employer, or a certificate from the munitions tribunal that the consent has been "unreasonably withheld." The ostensible object of the clause was to check the employers from bidding one against the other for each other's workpeople, incidentally raising the wages to a famine level. The economic advantage enjoyed by the ship owner from a scarcity of ships, the law prohibited to the worker from a scarcity of labour; the iron rule of supply and demand being bent at once to order. But the effect was also a new and unaccustomed interference with the personal liberty of the worker, to whom a spell of six weeks' unemployment and loss of wages was out of the question as a means of release from his or her employer. The chain pressed with exceptional severity on workers tied to sweated conditions of labour. Nor was a discharge certificate, refused by the employer, always granted by the tribunal, although the earnings were less than 10s. a week, and a rise in wages amounting to 100 per cent. was offered by an employer elsewhere. The tribunal refused at other times to enter into the matter of wages at all. Other women were tied to 70 or 80 hours of work a week, and fined into the bargain for bad time-keeping, or compelled to walk several miles each way to and from work, on the top of a twelve-hour shift, although a new factory opened close at hand and offered an eight-hour day. The defective representation of the workers,† and non-representation of working women, in the constitution of the

* The engineering, ship-building and allied trades were scheduled immediately.

† The tribunal was constituted from "a person appointed by the Ministry of Munitions, invariably a lawyer, and two or other even number of 'assessors' representing the employers and the workers." But the "assessor" representing labour, instead of being directly appointed by the workers, was selected from a panel formed under the Insurance Act, the persons placed on which seldom possess the qualifications required for the new office.

tribunals, prejudiced inevitably a proper hearing of the case. The women were loth besides to bring a case into court at all; while the employer discovered a new weapon of tyranny in the threat to drag the worker before the tribunal. A firm of national repute saw even no discredit in taking advantage of a defect in the drafting of the Act in order to discharge a worker, and *still refuse a discharge certificate!* Thus, the effect of the Munitions of War Act, 1915, was to reduce the workers to a state bordering on slavery, and check an advance in wages corresponding with the rise in the price of other commodities, as effectually for women exploited at sweated rates,* as for men enjoying comparatively high earnings.†

But, with the growing demand for munitions of war, the Government was able no longer to ignore the discontent of the workers, or determination of the trade unions to make no new concessions without new safeguards. In September, 1915, the Minister of Munitions appointed a new Labour Supply Committee, presided over by Mr. Arthur Henderson, and including among its members Miss Mary Macarthur and other representatives directly chosen by the workers, together with employers and officials. The Committee set to work at once, and drew up a comprehensive "Scheme for the Dilution of Skilled Labour," circulated the following October to the employers and trade unions.

The principle laid down by the scheme is that "no skilled man shall be employed on work which can be done by semi-skilled or unskilled labour," and certain "notes" or rules are added for the guidance of employers in controlled establishments with regard to the admission of female labour. Any proposal to introduce women in the highly-skilled branches of the engineering trades should be referred by the employer first of all to the Minister of Munitions; young girls under 18 years of age should not be employed on shells over 6-pounders; forewomen should be appointed in order to supervise female labour and act as intermediaries between the women and the manager or foreman; suitable lavatory and cloakroom accommodation with female

* The hardship of being tied to undesirable conditions of labour was by no means confined to the women. The case appears, for instance, of a skilled felt hatter, who entered a munition factory as an unskilled labourer at 26s. a week on the outbreak of war, owing to the slack state of his trade, but failed to obtain his discharge when his trade revived, although he could earn 40s. a week, and his former employer was already discussing the necessity of introducing women in place of men.

† The rise in the rate of wages in the engineering trades was not more than 10 per cent., June, 1916, although individual workmen earned high wages, and less than 30 per cent. after the April advance of 5s. a week in 1917, the cost of living having risen by as much as 65 per cent. during the same period. While the clause of the Munitions of War Act, limiting the profits of the employer allows an advance of one-fifth or 20 per cent. on the profits of the three previous years before the limitation commences to take effect, and in May, 1917, the clause is altogether withdrawn by the Government, without consultation with the trade unions, employers in controlled establishments being subject only as other firms to the Excess Profits Tax.

attendants should be provided for the exclusive use of female workers; overalls and caps, with arrangements for washing, should be provided by the employer. The Committee drew up at the same time a schedule showing a number of occupations adapted to female labour,* together with an important memorandum, known as Circular L.2, fixing the rates of wages to be paid to women employed on work "customarily done by men."†

The Circular, although conceding only a part of the trade union demands, lays the foundations of a women's charter in the engineering trades. The old discrimination reappears in favour of the skilled worker, and the rate "customarily paid for the job" is not secured except to women employed in the place of *fully-skilled tradesmen*. But, following the lines of the trade union deputation in August, a standard time-rate of £1 a week of normal hours must be paid to all women over 18 years of age employed on work "not recognised as women's work before the war," together with the men's overtime, nightshift, Sunday and holiday allowances. Elaborate provision is made besides in order to secure the piece-rate, so far as this is practicable without the time-rate.‡ "On systems of payment by results equal payment shall be made to women as to men for an equal amount done." The premium bonus and piece-rates must be fixed on the basis of the *men's time-rate*, and to yield such a sum beyond as a man would have earned had he himself been employed on the job. Piece-rates and premium bonus rates, again, must not be changed without a definite change in the process of manufacture. The terms secure at least a standard rate, guaranteed on piece-work as well as time-work, and check the worst abuse of the piece-rate by the employer, forming a substantial advance on those of any previous agreement. But the Circular shows, unfortunately, one serious defect—the provisions are optional and not compulsory on the employer. Hence, the effect of the Circular was none at all, except in national factories under the immediate control of the Minister of Munitions; and the employers, including the Admiralty, snapped their fingers in the face of Mr. Lloyd George, and declared openly their refusal to comply with the conditions laid down by the order.

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* The following is the list of occupations:—

"(i.) Handwork:—Inspection and viewing, especially those processes which do not involve the use of appliances of precision. Assembling. Welding (mechanical) small parts. Armature winding. Taping armature coils. Armament core building. Painting and varnishing of shells.

(ii.) Machine Work:—Automatic machines. Semi-automatic machines, where operations are within the limits of a woman's physical capacity. Generally work of suitable dimensions and of a repetition character.

(iii.) Storekeepers and timekeepers."

† The terms of L.2 are given in full in Appendix II.

Another memorandum, known as Circular 33, was issued at the same time fixing the rates of wages to be paid to semi-skilled and unskilled men employed on work customarily done by skilled men.

‡ For other criticisms of L.2 see p. 33.

The Minister of Munitions appointed about the same time in the autumn, 1915, a Health of Munition Workers' Committee, under the chairmanship of Sir George Newman, Chief Medical Officer of the Board of Education, supported by a Welfare Section.* The Committee reports "In one factory visited at night the manager stated that fatigue prevented many of the women from making the effort to go from their work to the mess room though in itself the room was attractive. In another, visited also at night, several women were lying, during the meal hour, besides their piles of heaped-up work; while others, later, were alseep besides their machines, facts which bear additional witness to the relative failure of these hours. A few women of rare physique withstand the strain sufficiently to maintain a reasonable output, but the flagging effort of the majority is not only unproductive at the moment, it has its influence also upon subsequent output, which suffers as in a vicious circle." The Committee make in consequence a number of important recommendations in special reference to female labour. Continuous work in excess of the normal legal limit of 60 hours per week ought to be discontinued, a week of 56 hours being said to yield the best results on moderately heavy work. By excessive hours of work, output is reduced and not increased. Young girls under 18 years of age should not be employed on nightshift unless the need is exceptional, and supply of adult labour is inadequate. "The system of 8-hour shifts appears to yield the best results in the long run," and the Committee recommends the adoption of the three-shift system in so far as the supply of labour is sufficient, and a change-over each week, so that the nightshift, which is the most trying to the worker, recurs only every third week.† The Committee notes again, "Sunday labour is a serious evil," and "should be steadily and systematically discontinued and restricted." Other recommendations include improved means of transit, the provision of canteens, rest-room and first-aid facilities, the appointment of welfare supervisors, the medical examination and supervision of workers employed in the "danger" sheds, and other preventive measures against the effects of poison. "Workers should not commence

* The series of reports issued by the Health of Munition Workers' Committee include memoranda on the "Employment of Women," "Hours of Work," "Sunday Labour," "Industrial Fatigue," "Sickness and Injury," "Special Industrial Diseases," "Industrial Canteens," "Welfare Supervision," "Lighting and Ventilation," "Statistical information concerning output in relation to Hours of Work," "Investigation of Workers' Food and suggestions as to Dietary," "Juvenile Employment," and other matters affecting the health of munition workers.

† "The flagging output which appears to characterise the last hours of a 12-hour night-shift seems similarly characteristic of the last hours of overtime during the day. The recognition has been forced upon some employers by the resultant fatigue, illness and bad timekeeping of the workers; and to others it has come by some accidental shortening of the day, which has shown that the loss of hours has carried with it no diminution of output. . . . . In the 8-hour shift each hour has a sustained value in contrast to the diminishing value of the later hours in a 12-hour shift."

work without having taken food ; for evidence shows that hungry and ill-fed workers succumb more readily than others." The Committee issues later a series of model dietaries for munition workers ; the cost of food, without cooking or service, being estimated at 2s. to 2s. 6d. a day for an adult man, and $\frac{1}{10}$ to $\frac{1}{5}$ less for an adult woman.* The trade union demand for a minimum rate of £1 a week for women munition workers erred clearly on the side of moderation.

However, the struggle between the employers and the workers continued to centre round the question of wages. The trade unions were not either in a mood to be put off once more with promises, or to enter other bargains to which the workers became bound while the employers remained free. Upon the issue of the two Circulars, L.2 and L.3, fixing rates of wages for female and seni-skilled or unskilled male labour, a deputation from the Amalgamated Society of Engineers waited at once on the Labour Supply Committee and demanded the making compulsory of the two orders on the employers as the price of the co-operation of the members in the Government " Scheme for the Dilution of Skilled Labour." The recommendations embodied by no means the whole of the claims put forward by the trade unions, representing only a compromise between the employers and the workers. The request made by the Amalgamated Society of Engineers to the Minister of Munitions was moderate in the extreme, and, not otherwise regarded by the Labour Supply Committee, whose chairman, Mr. Arthur Henderson, signed the following memorandum, countersigned by Mr. Lloyd George :—

" That in order for the owners of Controlled Establishments to secure the co-operation of the Ministry of Munitions (Labour Supply Committee) and the Amalgamated Society of Engineers in introducing the scheme for the " Dilution of Labour " it shall be incumbent on such employers that they must observe the rates and conditions of labour as governed by Circulars L.2 and L.3."

Nevertheless, the obstinate refusal of the employers to observe the conditions of L.2 and L.3 continued to obstruct the Government " Scheme for the Dilution of Skilled Labour " ; while the Minister of Munitions appeared either indifferent or powerless to act. The women themselves grew desperate as the £1 a week,

* In answer to Dr. Barbara Tchakovsky, who brings forward these dietaries as a reason for a rise in wages to women munition workers, Dr. Leonard Hill, of the Health of Munition Workers' Committee, writes : " I gave these diets as satisfying the tastes and appetite of a well-to-do munition worker. A far cheaper diet can be formulated . . . . a diet of porridge or whole-meal bread, with some fresh vegetables and fruit suffices and only has the disadvantage of monotony. I have known a Japanese artist when hard up keep himself for a month at a time on nothing but boiled rice and cabbage chopped up fine and eaten raw." But with all due deference to Dr. Leonard Hill, the " man in the street " finds hard to believe that the valuable time of the Health of Munition Workers' Committee is spent in drawing up dietaries in order to satisfy the fancy tastes and appetite of the well-to-do munition worker.

advertised by Mr. Lloyd George in the press, with a flourish of trumpets, receded from week to week. With a great Scotch armament firm employing many thousand women in shell-making, the low time-rate of 15s. and long delay in exchanging to piece-work drove even "cheap and docile female labour" to the verge of strike.* The women, who belonged to the National Federation of Women Workers, gained the support of the Amalgamated Society of Engineers; and the Government became alarmed, calling the attention of the firm in an urgent message to Circular L.2. But the firm, although refusing before to as much as confer with the women's union, understood an exhibition of force and granted at once a war bonus of 5s. a week, raising the earnings to at least the standard of L.2. However, the rare intervention of the Government was reserved for workers who fought for themselves. The standard of wages obtaining for the large body of women munition workers employed on men's or on women's work appears in an agreement reached between the Midland Employers' Federation and the Workers' Union, November, 1915. The terms fix a time-rate of 7s. to 16s. a week of normal hours for women of 14 to 21 years of age, the piece-rates being estimated to yield time-and-a-quarter; while the worker, whose earnings fall below the time-rate, must not be refused a discharge certificate by her employer under the Munitions of War Act. The Amalgamated Society of Engineers and the National Federation of Women Workers criticised severely the agreement, as playing into the hands of the employer against the worker and prejudicing their own demand for a minimum wage of £1 a week, by giving the countenance of an important trade union to a "sweated" rate of wages. A general labour union, composed of semi-skilled and unskilled workers belonging to every variety of trade, although able to level up wages from the bottom to a common standard in unorganised trades, stands necessarily in a weak position to secure a rate above the average for a single section of its members, and still less "the rate customarily paid for the job" to workers introduced in an organised trade. The National Federation of Women Workers enjoyed a superior position only by reason of its alliance with the Amalgamated Society of Engineers. Nevertheless, the agreement secured advances of several shillings a week for a large number of workers, and more than one woman earning 10s. or 12s. a week and refused a discharge certificate by her employer, obtained her release from a local munitions tribunal on the ground that her earnings fell below the scale of wages agreed between the Midlands Employers' Federation and the Workers' Union.†

* The workers were within their technical rights to strike, owing to the undue delay of the Board of Trade in acknowledging their appeal for arbitration.

† The female membership of the Workers' Union rose from 5,000 to 20,000 during the year 1915, including a large proportion of munition-makers. The union has done without question great service in organising the women, especially in the Midlands.

Nor are terms more favourable to female labour secured by private agreement between the employers and the engineering unions. The Boiler Makers secure only the general terms of the Treasury Agreement: "The relaxation of existing demarcation restrictions and admission of semi-skilled and female labour not to affect adversely the rates customarily paid for the job." An agreement reached by the National Brassworkers and Metal Mechanics' Union with two firms, November, 1915, follows again the lines of the Shells and Fuses Agreement. "The employment of females is only desired to help the country in its perilous condition, and no man shall be any worse off through the employment of females." and the agreement lays down "that any female working by the piece and on jobs done by men shall be paid the same rates less by any extra cost necessary in overlooking." But nothing is said with regard to the time-rate beyond a provision, "that where any female becomes proficient at her work she shall have the option of going on piece-work," and no attempt is made to secure a minimum wage for female labour. The terms offer on the whole less security to the workers than the Shells and Fuses Agreement, and apply only to two firms.

However, in November, 1915, Mr. Lloyd George introduced a Bill into Parliament for the amendment of the Munitions of War Act, including a clause giving power to the Minister of Munitions to fix rates of wages and other conditions of female labour. Nevertheless, the Bill brought grave disappointment to the workers. Serious defects of the principal Act remained unremedied, while its operations became extended. But the omission of any clause giving power to the Government to fix rates of wages for semi-skilled or unskilled men, notwithstanding the promise given by Mr. Lloyd George to enforce L.3 as well as L.2, caused the chief indignation of the engineering unions. The Amalgamated Society of Engineers took once more the lead, calling a National Conference of trade unions in support of a long list of amendments to the Bill. The struggle centred as usual round the question of wages. Two amendments were proposed by the Society, one giving power to the Government to fix wages for semi-skilled or unskilled men, and the other making compulsory the provisions of L.2 and L.3. Both amendments were refused by the Government. The energetic action taken by the Amalgamated Society of Engineers checkmated, however, the action of the Government in hurrying the Bill through the House of Commons without discussion. The Amalgamated Society of Engineers was not either in a mood to temporise, and showed another spirit than in the spring or summer. An invitation by Mr. Lloyd George to the members to attend a conference on the North-East Coast met only with the unaccustomed reply "That we as an executive council, are not prepared to take any part in any conference which has for its object the dilution of skilled labour, until the Minister of Munitions takes steps to render legal and mandatory the rates of pay and conditions of labour to those semi-skilled and unskilled

men who may take the places of those of our members transferred to more highly skilled work." Mr. Lloyd George met with as cold a reception on the Clyde, where the imprisonment of the five Fairfield shipwrights for the non-payment of fines under the Munitions of War Act had fanned the irritation of the workers to a state of dangerous exasperation. The Amalgamated Society of Engineers met once more in general conclave, reaffirming the demands of "200,000 operative engineers." The trade unions, even as the employers, proved themselves a force to be reckoned with; and the Government was impressed. On the last day of 1915, the Prime Minister, together with the Minister of Munitions, received a deputation from the Amalgamated Society of Engineers, and accepted at least a part of the amendments to the Bill tabled by the Society, including the debated clause giving power to the Minister of Munitions to fix rates of wages for semi-skilled or unskilled men. The amendment making compulsory the terms of L.2 and L.3 was not included as part of the Bill, but Mr. Asquith added his own word to the promise of Mr. Lloyd George that the Government would make "legal and mandatory" in controlled establishments the rate of wages recommended in the circulars. Other amendments secured by the Amalgamated Society of Engineers and National Federation of Women Workers included the reconstitution of the Munitions Tribunals,* giving more adequate representation to labour and representation to women by a *woman* "assessor," new safeguards against imprisonment, and various machinery for ensuring notice to the trade unions before making changes in workshop conditions. The trade unions fought and won, in fact, a brilliant engagement.

But the great advance under the Munitions of War (Amendment) Act, 1916, from the point of view of the woman munition worker, was in the clause giving power to the Minister of Munitions to fix rates of wages and other conditions of female labour. The terms, inspired by the National Federation of Women Workers, stand on a broader basis than the corresponding clause with regard to semi-skilled or unskilled men inspired by the Amalgamated Society of Engineers. The men's union representing mainly skilled interests, aimed first of all at securing the rate "customarily paid for the job" to skilled tradesmen, the provision being confined in consequence to semi-skilled or unskilled workers employed in skilled trades.† The National Federation of Women Workers, representing mainly semi-skilled or unskilled

* Other amendments tabled by the Amalgamated Society of Engineers, but refused by the Government, included a provision removing the onus of an appeal to a munitions tribunal from the worker, who claims a discharge certificate, to the employer, who claims a case for refusal, and a limit of six weeks to the period during which the employer might retain a worker against his or her will; also a provision setting a time-limit of three weeks to the period of delay in a settlement by arbitration.

† However, the provision includes semi-skilled or unskilled men employed "in the manufacture of complete shell, fuse, and cartridge cases in any controlled establishment in which such manufacturing was not customary before the war."

interests, aimed on the other hand at securing a fair living wage for the whole body of women munition workers, employed in men's or in women's work in skilled or in unskilled trades, a special claim to Government protection being based on the restrictions imposed by the Munitions of War Act on the mobility of labour. The provision extends in consequence to all "female workers employed on or in connection with munitions work in any establishment of a class to which the provisions of section 7 of the principal Act are for the time being applied." Thus, the different point of view appears taken by skilled tradesmen in demanding protection for semi-skilled or unskilled labour, or by semi-skilled or unskilled workers in demanding protection for themselves, and is not without significance. The Minister of Munitions took power under the same (Amendment) Act, to appoint a Special Tribunal or Tribunals, including representatives of the employers and workers of whom at least one must be a woman in so far as concerns female labour, in order to advise the Minister in fixing rates of wages or other conditions of labour, and to settle disputes referred by the Board of Trade for arbitration. The Munitions of War (Amendment) Act became law in January, 1916, and L.2 and L.3 became legal and mandatory in controlled establishments in the following February, marking the end of the first chapter in the story of the dilution of skilled labour.

Meanwhile, the new protection afforded by the Government to munition workers was not slow to take effect. In a typical shell factory, several thousand women coming under L.2, the basic or time-rate rose straight away from 15s. to 23s. a week; while the advances gained on the premium bonus rates amounted at least to 10s. a week, the women rivalling the men in earnings, notwithstanding a deduction of 25 per cent. from the basis times on account of the need of inexperienced female labour for additional supervision and assistance in setting the tools. But, although the advance in wages was substantial, the circular represented only a compromise. The time-rate "customarily paid for the job" was not secured except to women employed in the place of *fully-skilled tradesmen;* and, without a guaranteed time-rate, the piece-rate remained liable to abuse by an unscrupulous employer. Moreover, a large body of workers coming under L.2, "gaugers," "examiners," "labourers," were time-workers, and entitled only to the standard of £1 a week of normal hours, although the rate customarily paid for the job was 28s. or upwards, and female labour proved no shortcoming in output. The bare standard conceded to time-workers, while piece-workers earned comparatively high wages, caused grave disaffection in more than one factory. Nor was the full rate of £1 a week always secured; and, the normal hours of work being reduced from 53 or 54 to 48 a week, the rate was reduced in proportion to 18s.; although a deduction from the rate on account of a reduction in the hours of work was against the practice of the trade, the usual effect being to accelerate and not diminish output. The clause permitting a reduction of

25 per cent. from the rate for women "prevented from working owing to breakdown, air raid or other cause beyond their control," unless they are sent home and secure in consequence nothing at all, gave a similar sanction to another departure; the men being paid full time under like circumstance. The rate of £1 a week of normal hours was not even a *minimum* but a *standard*, except for piece-workers; the term "minimum," included in the original draft, being struck out from the circular by the Minister of Munitions on the representation of the employers.* The absence of provision for young girls under 18 years of age showed as serious a defect. Nor was the omission remedied by the order, fixing rates of wages for young girls under 18 years of age employed on work "not recognised as women's work before the war," issued by the Minister of Munitions, July, 1916, and reducing the standard of L.2 by 10 to 30 per cent. according to the age of the worker on the *piece-rate* as well as the *time-rate*, although juvenile labour proved no shortcoming in output or other disadvantage to the employer.†

Moreover, the interpretation of the terms of L.2 remained with the Minister of Munitions in case of dispute, and the sympathies of the middle-class politician or official, however impartial, tend to side with the employer and against the worker. Shell-making was classed as a semi-skilled trade, although not a few operations were performed by skilled tradesmen before the war and the whole trade was reserved to skilled labour in Sheffield. Fuse-making was classed as a women's trade, although men and boys were equally employed before the war, and more than one operation was reserved entirely to men, even in Birmingham. But the interpretation given by the Minister of Munitions to Clause I. of L.2, *i.e.*, "that women employed on work customarily done by fully-skilled tradesmen shall be paid the time-rates of the tradesmen whose work they undertake," raised the chief opposition of the engineering unions, the interests of whose members were directly concerned. Mr. Lloyd George pronounced as follows:—

* The £1 a week of normal hours is not secured except in the Engineering trades. Thus, the National Union of Gold, Silver, and Kindred Trades enters an agreement with the Sheffield Master Silversmiths' Association, June, 1916, "which shall apply only to branches where women have not hitherto been employed," fixing a rate of 18s. a week, after six months service, with the option of working on the same piece-work rates paid to men in the same branches of the trade, for women over 18 years of age. The agreement includes the usual provision that "on the termination of the war, no further women or girls shall be engaged in branches of trade in which women and girls were not employed prior to the war."

† Clause 9 of L.2, laying down that "piece-work prices and premium bonus times shall be fixed by mutual agreement between the employer and the woman or women who perform the work," has been sometimes criticised as opening the door to private as against collective bargaining. The object of the clause is to preserve the principle of "mutuality" and check the employer from fixing rates arbitrarily over the heads of the workers; and in point of fact no other consequence is discovered. Where the women are organised, they refer a grievance to the trade union as a matter of course; while, where the women are unorganised, they remain in any case at the mercy of the employer.

" That where a woman is introduced to perform a part only of the work previously done by a skilled man, she is not, in the opinion of the Minister, entitled by terms of Circular L.2 to receive the full district rate customarily payable to that skilled man, inasmuch as she is not performing in its entirety the work customarily done by the skilled man. If, however, in the opinion of the employer and the representative of the men in the shop concerned, the nature of the work and the degree of efficiency acquired by the women are such as justify the subsequent application of the district rate, there is nothing in the circular to preclude that rate being eventually paid."

Thus, the old loophole of escape from an inconvenient bargain, enjoyed already by the employer under the Shells and Fuses Agreement, reappears once more in Circular L.2. The number of inexperienced women, employed on the *whole* of the job of a *fully-skilled* tradesman is necessarily small, and need not be any at all, so long as the option of a new sub-division of labour lies entirely with the employer. The chief value of the circular disappeared, so far as concerned the engineering unions, and the skilled tradesman remained without other protection of his standard of living against the admission of female labour than the semi-skilled mechanic or unskilled assistant. But the Amalgamated Society of Engineers was not prepared to accept without resistance an interpretation of L.2, which snatched from its members what appeared to themselves as the principal fruit of a long and painful struggle. " Unaccountable disaffection " appeared once more in important munition centres; and the Dilution Commission, appointed by the Government on the Clyde, January 1916, under the chairmanship of Mr. Lynden Macassey, in order to carry out the Government " Scheme for the Dilution of Skilled Labour," drew up the following recommendation as the basis for a local agreement between the employers and the trade unions :—

" Where a woman is put on to any portion of a job customarily performed by a fully skilled tradesman, the woman shall be paid a weekly wage of £1 per week, £1 1s. for the fifth week, increasing for the sixth and each succeeding week, until the expirat icn o the thirteenth week by such equal weekly increase as will ensure that at the end of the thirteenth week a woman receives the time-rate of the tradesman by whom the job is customarily performed."

The recommendation was accepted by the Amalgamated Society of Engineers, the members overcoming their previous objection to a probationary rate for adult workers, and the terms approved later by the Minister of Munitions. But the agreement was rejected by the employers, and remained inoperative, although 13,000 women were introduced in the Clyde engineering shops under cover of L.2 during the year 1916. Nor was the temper of the men improved by the frequent attempts made by the employers to introduce female labour without notice to the trade unions concerned, or to extend " dilution " from Government to private work against the provisions of the Munitions of War Act. The long patience and not the occasional outburst of labour forms the true matter

for wonder. The patriotism of the workers has stood nowhere a severer test than on the Clyde. The employers showed a less obdurate spirit on the Tyne, where the Dilution Commission was appointed in the following June, and local agreements were reached between the principal firms and the trade unions on the lines proposed by the Commission, whose terms covered between 500 and 600 women before the end of the year 1916, subject only to one modification in favour of the employer permitting a reduction from the rate on account of the need of inexperienced female labour for additional supervision and assistance in setting the tools. But the agreement was confined to the Tyne district, and the Amalgamated Society of Engineers, together with the National Federation of Women Workers, strove without ceasing for a general amendment of L.2, including a demand for an intermediate rate for women employed on work of an intermediary character between skilled and semi-skilled. In February, 1917, one year after the making complusory of L.2, the Minister of Munitions issued at last an amending Order 49, embodying practically the terms of the recommendation made by the Dilution Commission, and securing the time-rate as well as the piece-rate to women employed on *part of the job* of a *fully-skilled tradesman*, after a period of three months probation; a clause laying down "that a woman shall be considered as not employed on the work customarily done by fully-skilled tradesmen, but a part or portion only thereof if she does not do the customary setting up, or when there is no setting up, if she required skilled supervision to a degree beyond that customarily required by fully-skilled tradesmen undertaking the work in question," and another clause permitting a deduction not exceeding 10 per cent. from the rate on account of the need of inexperienced female labour for additional supervision and assistance in setting the tools. The abuse of the *fully-skilled* rate is confined at least within definite limits, although the reason is not clear for a deduction from the rate on account of *inexperienced female* rather than *inexperienced male labour*. Nor is the demand of the workers conceded for an intermediate rate for women employed on "intermediary" work, and an option lies only with the tribunal to fix a higher rate than the standard. The term *fully-skilled tradesman* is not either defined but remains ambiguous, and liable in the absence of other ruling by the Minister of Munitions, to interpretation by the employer so as to include only the *fully-qualified* or apprenticed tradesmen and not the *skilled tradesman* promoted from the ranks but earning the full trade union rate of wages or a rate lower by not more than 2s. a week.

The new order embodies besides an earlier amendment to L.2, December, 1916, raising the standard from £1 a *week of normal hours* to £1 a *week of* 48 *hours*, and disallowing a deduction from the rate on account of a reduction in the hours of work, although the earnings must rise in proportion as the hours of work are increased.* The discrimination is just, so long as the option of a shorter

* For the purpose of over-time rates the working-week remains the normal week worked by men.

or longer day lies with the employer. Time-workers employed in the place of semi-skilled men, or on " work of a specially laborious or responsible character," or under special circumstances, must be paid in addition " according to the nature of the work and the ability of the woman." The amending Order 49 brings again a substantial advance on L.2, although the rate customarily paid for the job is not secured except under certain conditions to women employed in the place of *fully-skilled* tradesmen.

But the power taken by the Government under the Munitions of War (Amendment) Act to fix the rates of wages and other conditions of female labour was not confined to women employed on work customarily done by men, and extended to all women coming under Section 7 of the principal Act ; and in February, 1916, the Minister of Munitions appointed a Special Tribunal for Women, including representatives of the Amalgamated Society of Engineers and the National Federation of Women Workers, and with powers in accordance with the new Act to advise the Minister and settle disputes referred by the Board of Trade for arbitration. The Tribunal set to work at once ; and, in so far as the workers were organised and appealed to arbitration, rates of wages were raised from 2¾d., 3d., 3½d. an hour to 4d., 4½d., 5d. an hour in one factory after another, within a few months. During the first eighteen months of working, the Tribunal determined no less than 150 awards.* The new facilities offered for arbitration and success won by trade union action reacted in turn on organisation. During 1916, the National Federation of Women Workers alone rose in membership from 20,000 to 40,000, mainly munition workers.† The awards of the Tribunal had also some good effect on private agreements. A scale of wages, agreed between the Manchester District Engineering Employers' Association and the Workers' Union, April, 1916, fixes a rate of 18s. a week for women munition workers over 21 years of age, and shows a rise of 2s. on the scale agreed for the Midlands in the previous autumn.‡ But, although substantial advances in wages were secured by means of arbitration or private agreement in individual factories or districts, progress remained necessarily slow and piece-meal ; and the large body of unorganised women remained at the pre-war level of wages or secured only a war bonus of 1s. or 2s. a week, notwithstanding a rise of 50 per cent. in the cost of living. However, in July, the Minister of Munitions issued at last a general order, known as Order 447, consolidating the awards of the Tribunal with regard to women and young girls employed on work " not recognised as men's work before the war " ; and fixing a standard rate of 4½d. an hour for time-workers and a minimum rate of 4d.

* These awards are estimated to cover about 100,000 women in the engineering trades, June 1917.

† The female membership of the Workers' Union rose during the same year to at least 35,000 " paying " members by December, 1916, and continues to increase at a no less rate during 1917.

‡ The agreement includes a clause to safeguard the conditions of L.2. " The aforementioned rates shall not apply to any female worker coming under the provisions of L.2."

an hour for piece-workers, with a lower scale for young girls under 18 years of age, and an additional ½d. an hour in the danger sheds, in order to compensate for the risk to life and health from explosion or poisoning. But, although the issue of a general order formed again a step in the right direction, the terms were by no means satisfactory to the workers; the rate of 4½d. an hour representing, in the autumn, 1916, a bare equivalent of 3d. an hour before the war, or 25 per cent. less than the standard of 17s. a week of normal hours laid down by the Women's Co-operative Guild as the minimum subsistance wage for an adult woman. The rate was not even a minimum but a standard, and likely to become a maximum. In more than one factory, the application of the order prejudiced an appeal by the workers before the Tribunal, or a promise by the firm for an advance in wages beyond the statutory standard. The minimum of 4d. an hour guaranteed on piece-work, or ½d. less than the time-rate, lay open to even severer criticism; and the employer, determined to keep down wages, found another opportunity to secure a piece-work effort at even less than a time-work wage from "patriotic female labour." The fixing of a higher or lower standard by the Government in reference to women employed in men's or in women's trades regardless of the qualifications of the worker or character of the work performed, showed as little justification; the injustice being aggravated by the restrictions imposed by the Munitions of War Act on the mobility of labour. Moreover, the order was not applied to every factory, or even to every controlled establishment, and only to an unpublished list of scheduled establishments. Order 447 formed truly a fitting parting gift from Mr. Lloyd George to women munition workers.

However, the unremitting efforts of the National Federation of Women Workers and Amalgamated Society of Engineers, secured the remedy of some defects; and Mr. Montagu, succeeding Mr. Lloyd George as Minister of Munitions, issued a supplementary memorandum, September 1916, conceding two important amendments to the order. Piece-rates must be fixed to work out at time-and-a-third at least for "a woman or girl of ordinary ability," although permitting a dispensation on appeal by the employer; while overtime, night-shift, Sunday and holiday rates, not mentioned in the original order, must also be paid according to the custom of the trade. Mr. Montagu issued finally a consolidating Order 9, January 1917, embodying the earlier orders and including a further provision, "that the position of any person or persons whose existing rates of remuneration exceed the rates herein prescribed shall not be prejudiced by this order either by a reduction in existing rates, or by replacement by another person or persons at lower rates." On the other hand, the principle of a probationary rate is recognised for the first time, a deduction of 1d. an hour being permitted during a period of one to three months, according to the age of the worker. The loss is serious to the worker in view of the low rate of wages. Nor is a standard of 4½d. an hour

apparently viewed as low by the Minister of Munitions, who issues a twin Order 10, on the same lines as Order 9, but showing a scale of rates *reduced by a farthing an hour*, for application in a second unpublished list of scheduled establishments, presumably in remote or rural districts. In January, 1917, according to good authority, 100,000 women munition workers remain without Government protection, although coming under Section 7 of the Munitions of War Act and restricted in moving from one employer to another; rates of wages being discovered as low as 2¾d. and 3d. an hour, with only a war bonus of 1s. or 2s. a week in order to meet a rise of 65 per cent. in the cost of living.*

But the continued bombardment of the Minister of Munitions by Miss Mary Macarthur on behalf of the National Federation of Women Workers was not altogether without effect. The demand of the women's union for an all-round rise of 2d. an hour was refused. But, in April, 1917, the Minister of Munitions decided to grant an advance of 1d. an hour on the time-rate and ¾d. an hour on the basic-rate† for women over 18 years of age, and ½d. an hour on the time-rate and ¼d. an hour on the basic rate for yonug girls, with an advance of 4s. a week on the time-rate for women employed on work "not recognised as women's work before the war," bringing up the standard for the latter to 24s. a week of 48 hours; the new orders being estimated by the Minister to cover 90 per cent. of the women employed in controlled establishments.‡ But the advance in wages affects only the standard or minimum and differs in this from the all-round bonus of 5s. a week secured by the men at the same time. Women earning already a time-rate of 5½d. an hour, or a basic rate of 5d. an hour in women's trades, or 6d. an hour in men's trades, secure nothing at all. Nor is it clear how far the women earning the rate "customarily paid for the job" in skilled trades are entitled to the 5s. bonus granted to the men. The obvious right of the worker is disputed as usual by the employer. The continued opposition of the Amalgamated

* The Commission of Inquiry into Industrial Unrest (reporting, July 1917), includes among the causes of unrest the "inconsiderate treatment of women, whose wages are sometimes as low as 13s.," the rise in the cost of living being estimated as high as 75 per cent. "The introduction of female labour without consultation with the workpeople," contrary to the provisions of the Munitions of War Act, forms another source of disaffection. The Commission also recommend that, "the greatest publicity possible should be given to the abolition of Leaving Certificates"; the Amalgamated Society of Engineers having extracted from the Government a promise to include a clause to this effect in the Dilution Bill then before Parliament. The new Munitions of War Act (August 1917) gives the Minister power to repeal Section 7 of the original Act and either: (1) merely to restrict the worker to munition work, without restricting her to any particular firm; (2) to exempt the worker from the provisions of Section 7 altogether. It is understood that the latter course will be adopted with regard to women, while Section 6 of the (Amendment) Act will continue in operation.

† The full time-and-a-third on piece-work, or 6⅓d., was not secured until June 1917.

‡ A number of women employed in railway and other engineering works, not controlled establishments, come nevertheless under Section 7 of the Munitions of War Act.

Society of Engineers to an extension of " dilution " from munitions of war to private work surprises only a Government department.*

Meanwhile, an explanation of the Government policy appears in an official statement by the Minister of Munitions in *The Times*, January 5th, 1917, " It is comparatively easy to deal with direct munitions. Shells and fuses have no use except in war, and no purchaser but the Government. But the progress of the war has led to the control of thousands of establishments of the most diverse character, from great firms making armour plates to firms making patent foods for babies. It has brought within the definition of ' munitions of war ' thousands of articles of ordinary commercial uses, many of which have long been made by women. The trades involved have their own customs, their own rates of pay, their own systems of apprenticeship, all framed under the stress of national and international competition. To interfere rashly with them would be like sticking a knife into the works of a watch, and in this field the Minister of Munitions has had to proceed with caution. The Special Tribunal has been engaged, however, on this task for many weeks. It has examined hundreds of cases, and if the new Orders which result from the labours leave any trades uncovered, it can, as the need arises, deal with these by arbitration."† But another explanation is given by the Standing Joint Committee on Industrial Women's Organisations in the report on " The Position of Women after the War," issued in December, 1916. " The promises to munition workers generally of a fair minimum have so far materialised precisely in proportion to the energy of the organisations concerned." Of the two pledges given by Mr. Lloyd George to organised men and unorganised women, " the admission of female labour shall not affect adversely the rates customarily paid for the job," and " the Government will see that there is no sweated labour," each is redeemed in proportion only to the strength of trade union organisation.

* A further advance was secured on August 15th, 1917, when an all-round bonus of 2s. 6d. per week was granted to women over 18 years of age, including piece-workers, and a bonus of 1s. 3d. per week to young girls.

† Miss Mary Macarthur writes the same day in *The Times* :—" The test is whether the woman worker is free to go elsewhere. If she is subject to the leaving certificate clause of the Munitions of War Act, we maintain that, according to Ministerial pledges, she should be assured a guaranteed living wage. I unhesitatingly assert that there are thousands of women subject to that clause to whom no protection has yet been accorded by statutory orders fixing wages. There are to-day women actually working on munitions of war for 2¾d. and 3d. an hour ; one case I have in mind has been before the Ministry for nearly nine months ; another case is at present the subject of arbitration, and no award has yet been given. It is true that a special arbitration tribunal exists before which their grievances theoretically may come, but in many other cases we have had months of negotiation before reaching the tribunal, and after our case has been heard we have had to wait months for the award. In one case concerning women entirely engaged on Government work of a very heavy and disagreeable character, the women applied for an increase in wages last June. The award was only issued just before Christmas and was not retrospective. The rates fixed for women on women's work if valued according to the Board of Trade statistics of the rise in the cost of living are worth less in real wages to-day than rates fixed legally for some sweated trades under the Trade Boards Act before the war."

THE POSITION OF WOMEN IN THE ENGINEERING TRADES DURING THE WAR.

(From the Outbreak of War to April, 1917.)

Statistics.

Between July, 1914, and January, 1917, according to a Board of Trade estimate, the number of women employed by private firms in the engineering and allied metal trades rose from 170,000 to 440,000, or by 270,000, about 90 per cent. being employed on work "customarily done by men," and 40 per cent. directly replacing men; During the same period, another 150,000 women, including 50,000 women employed in "filling," entered national factories, bringing up the total number to well over half-a-million. In private engineering shops alone, the figures show a rise from just below 17,000 to 174,000, or of 157,000, the percentage employed on "work customarily done by men" being as high as 95 per cent. The estimate includes young girls under 18 years of age, the number of whom employed by private firms rose by 50,000 at least during the same two-and-a-half years. Of the total number of women employed by private firms, three-fourths are engaged on Government work.

Sources of Supply.

Female labour has been drawn into munition factories from every source. A large number of women's trades fell slack at the outbreak of war, and offered an immediate supply of women munition workers. Dressmakers and milliners' assistants, laundry workers, confectionery workers, printers, linen, silk, lace workers, Lancashire cotton operatives, Birmingham pin, pen, cheap jewellery, and other small metal workers, passed into munition factories; the women's places being filled to a large extent by young girls as each trade recovered. Thus, in dressmaking, the Board of Trade figures show a decrease of 21,000 adult women between July, 1914, and July, 1916, against an increase of 26,000 young girls under 18 years of age. The Birmingham small metal trades recruit in the same way from young girls straight from school. At other times, a factory engaged in pen-making, jewellery-making, sewing-machine making, transfers as a whole to munition-making. Domestic service supplies again a large contingent of munition workers, notwithstanding the continued demand for domestic servants. The "sweated" trades, own province of female labour, form a no less fertile recruiting ground in view of the promise

of a rise in wages; although the movement is checked by the Munitions of War Act within the engineering trades. A large number of married women, including soldiers' wives and widows, with or without previous industrial experience, enter also into munition factories, together with young girls drawn prematurely from school or home; while fewer women leave the trade to marry. Small shop-keepers, professional women, artists, thrown out of employment, women of leisure, stimulated by patriotism, or a new necessity or desire to earn a living, add another quota of recruits, the proportion increasing as the war continues. However, the number of middle-class munition workers remains comparatively small.

A transfer of female labour has taken place at the same time from one district to another, although limited by housing accommodation and transit facilities,* and the inabiilty of women earning low wages to live apart from the family. Many women travel distances of twenty or thirty miles between the home and the factory, making a daily journey of two hours each way. But the supply of female labour varies from one district to another. Thus, Birmingham drew almost at once from outside sources, perhaps, on account of the small reserve of "unoccupied" married women, recruiting from Orkney to Jersey. Other great munition centres draw largely from Ireland while local supplies remain unexhausted elsewhere and new factories tap new districts. But no general shortage of female labour appears; and not a few employers boast a waiting list of several hundred women even in 1917. The patriotism of the workers, together with the comparatively high wages earned in some munition factories, tend to give to engineering a preference over other trades. An exception appears, perhaps, in the "danger" sheds, the women being reluctant to enter on account of the objectionable skin discolouration and other injurious effects on health from the handling of poisonous substances.

Trades in which women are employed on work "not recognised as women's work before the War."

I.—Shell-Making.

Processes.—Female labour was not employed in shell-making before the war, and only a few odd women were employed in shell-filling. The introduction took place in the autumn 1914. But the great influx of women came in the summer, 1915, following the Treasury and Shells and Fuses Agreements. By the end of 1916, women form already the great majority of the workers on 18-pounder and other small size shells, and compete with American automatic machines in the manufacture of the light anti-aircraft

* The lack of housing accommodation has been to some extent supplied by the erection of huts and hostels in crowded munition centres.

shell. On the 4.5 shell, weighing 40 lbs. in the rough, the women soon preponderate in the same way, and experiment on the 6.2 and 8.2 shell. In many factories the workers are 95 per cent. female, and include every variety of semi-skilled mechanic, "gauger," "examiner," "tracer," clerk and unskilled labourer, together with a minority of women taking the places of fully-qualified or skilled tradesmen as "tool-setters," "fitters," &c., in the tool-room. From the first cutting of the piece of bar, drilling and ripping the blanks, roughing and turning the bodies, rough-boring, finished-boring, opening out the mouth, shaping and screwing the nose, recessing, screwing and undercutting the base, waving and grooving, turning, fitting and pressing the copper-bands, turning and rivetting the base-plates, a host of small detail operations, until the final gauging of the grub-screw hole, the whole process is performed by female labour; although women are confined in some factories to only a few simple operations, and in almost every factory one operation or another remains in the hands of the men on account of a heavy or unsuitable machine.* The women work also under masculine supervision. In the machine shops, one skilled man or "tool-setter," perhaps himself promoted from the machines since the war, remains as instructor and supervisor to every few women, the number varying with the experience of the worker and character of the machines. The practice differs again in small converted general engineering shops where the "tool-setter" was unknown before the war; and men and women work side by side on the same machines, the skilled men instructing and assisting the women as before. The period of training varies. A simple "roughing" operation is learned in a few days or hours, while a delicate turning operation takes as many weeks, or is not learned at all until the "learner" acquires a certain "machine sense." The maximum period of training for any one machine operation outside the tool-room, is generally estimated at about three weeks; the usual plan being to initiate the "learner" on a simple automatic machine and promote her afterwards to other and more difficult operations as she gains in skill and experience. By this means, many women, having natural aptitude, become proficient on a whole series of operations by the end of six weeks or two months, and pass at will from one machine to another.

"We put the brains into the machines before the women begin," explains the manager of a successful shell factory, converted from a ship repairing works. The operations are "sectional" and "repetition" in character; the machines being adjusted by "jigs" or other "fool-proof" appliances in order to guide and assist the operator. Nevertheless, the operations are by no means automatic only, and not a few require in the worker a high degree of manipulative skill, and no small degree of muscular power.

* After March, 1917, Government contracts include a clause providing that 80 per cent. of the workers shall be women on shells between the sizes 2.7 and 4.5.

" Roughing " is a simple operation performed by a boy or a youth. The operator " minds " the machine, and the machine does the work. But " finished turning," or " finished boring," is a comparatively skilled operation, performed by an experienced mechanic, even a skilled tradesman earning the full trade union rate of wages. The " finished turning " of the copper-bands, upon which the women excel, more than one authority claims as the most skilled operation in the shop, although the process is a light one. The " recessing " and " undercutting " of the base require again a nice accuracy and judgment in " gauging." Nor are the women always dependent on mechanical assistance. The occasion has become historic, when a number of young girls, employed on a screw-cutting operation, abandoned the use of " taps " on their own initiative and chased the threads to gauge with the tool alone, " a feat of which any mechanic might feel proud." The strain is severe on the muscles at other times. In the boring of a 4.5 shell, the tool being worked by hand, a strong arm is as necessary as a delicate touch, or the worker loses control of the machine with damage to the tool or shell. The frequent starting of the machine and handling of the shell on short operations, place again a heavy tax on the worker. In the " fitting " of the copper-bands on a 4.5 in. shell, the weight of shell lifted during a 12-hour shift amounts to nine tons a day. But the effort of the worker varies with the type of machine. An old-fashioned machine is heavier to work than an up-to-date machine, and leaves also a larger share of skill to the part of the operator. With a certain hydraulic press, the pressing-on of the copper-bands lies beyond a woman's strength to perform at all and remains entirely in the hands of the men ; while, with another press, the women break the record of the shop on the same operation after only two days of experience. With a certain rivetting machine, the rivetting of the base plates exhausts a strong man owing to the intense vibration ; while young girls perform the same operation on other machines with comparative ease. The strain in lifting the shell, or removing the shell from the chuck, varies again according to the use of mechanical appliances, and is less on a 6.2 in. or 8.2 in. shell with the assistance of cranes than on a 4.5 in. shell without. Other operations are light or heavy according as the worker minds one or two machines. The woman operating two " roughing " machines and raising a 4.5 in. shell weighing 40 lbs. in the rough to a height of 3 ft. 6 in. every few minutes, has by no means a simple although a light occupation.

The readjustments made in the process, in order to adapt the operations to inexperienced female labour, vary in the same way. In converted general engineering shops, employing women in the place of skilled tradesmen, the transformation is often complete. A new plant of automatic machinery is set up for the first time, or the character of the machines is changed entirely by means of mechanical or " fool-proof " appliances ; a " block," a " former," an automatic " stop " or " cut-off," being

adjusted to an old-fashioned engine lathe or milling machine. The skilled job becomes automatic or semi-automatic, while the women work only under supervision. But in old-established shell factories, employing women in the place of semi-skilled mechanics,* the readjustments are comparatively slight in character, and sometimes none at all. Every automatic machine or " fool-proof " appliance, used afterwards by the women was used before by the men, who were also dependent on the " tool-setter." Or the readjustments, although extensive, bear little or no relationship to the introduction of female labour, and are incidental rather to the extraordinary expansion of the trade, the experience accumulated by the firm in the manufacture of a single article, and the pressure to accelerate output. A new form of tool or " block," a corrected action, speeds up the machine, but leaves practically unchanged the degree of skill or effort exacted from the operator. The same or similar mechanical improvements, enjoyed by the women in one factory, the men enjoy in another. New subdivisions of labour take place in the same way and are as insignificant. The " roughing " and " turning " of the copper-bands, performed by the men as one job, two women divide between them, but each woman is competent to perform either part. Or new services are rendered by labourers to female labour ; but the labourers themselves are women. The innovation reflects clearly no feminine disability. An important exception appears only with regard to women employed on heavy jobs. Thus, on the 6.2 in. or 8.2 in. shell, and sometimes on the 4.5 in. shell, special assistance in lifting is provided to women and not to men by means of mechanical cranes or male labourers. Or again, in labouring, the female " bogey runner " running the shells to and from the machines is provided with a lighter type of trolley than the male labourer, reducing the load by one-third or one-half. But these instances are comparatively few in number.

However, the new sub-divisions of labour are more important in the " gauging " or " examining " than in the machine sheds, the women taking the places of skilled tradesmen. Thus, in a typical shed the skilled job is split up into as many as 22 separate operations, and as many women take the place of one skilled man, himself retaining the final inspection and general supervision. Again, in the tool-room, the women taking the places of fully-qualified or skilled tradesmen as " fitters " or " turners " on non-repetition work, some degree of " specialisation " is almost invariable, the women being confined to comparatively simple and straightforward operations, while the skilled men continue supervision and assistance in setting the tools. In one factory, the tool-room is staffed entirely by female labour ; but the case is

* A large number of skilled men passed into shell-making during the early months of the war, whose places became afterwards filled by women. But these men were employed only in order to start and establish a factory, and were not the regular workers of the trade. Except in Sheffield, the large body of workers employed in shell-making were semi-skilled mechanics.

exceptional and the women belong to an educated class having undergone a special course of training.* The female "tool-setter," taking the place of a fully-qualified or skilled tradesman after a few weeks' or a few months' special training and instruction, performs again a part and not the whole of the skilled job. A seven or five years' apprenticeship is not crammed in the same number of weeks or months, and the women set but do not grind the tools, being qualified only on one series of operations, and dependent in turn on the superior "fitter." Nevertheless, the job remains in a category reserved entirely to the *fully-qualified* or *skilled tradesman*, while the female "tool-setter" shows not unlike qualifications and performs not unlike duties to many a semi-skilled man promoted from operative to "tool-setter" before or since the war, and classed as a skilled tradesman earning the full trade union rate of wages. Nor is the separate tool-store, to which the tools are taken or sent to be ground, an unknown institution in an up-to-date etsablishment, one skilled "grinder" being employed to as many as 200 machines, and simple grinding operations being performed by women. The female "tool-setter" belongs again not infrequently to an educated class. The post includes duties as supervisor or "charge-hand," and the employer tends to give the preference to women having some experience in authority over others.

Output.—An exact comparison of output is seldom possible between men and women, owing to the readjustments made in the process. More than one employer states the output of the factory to have trebled since the advent of female labour; but the fact is also attributed to improvements in machinery and workshop organisation. But, although statistics are not available, the rough statements made by employers and workers show a general consistency, in so far as the conditions are comparable. The women excel on small detail operations, exceeding the standard of the men by as much as 25 to 50 per cent. On "copper-band turning" and other small detail operations, the women break the record of the shop; and more than once a woman has been taken to task by the foreman and told to stand by for a while, because "her overmuch output upsets the men." On the other hand, the women compare less favourably on heavy operations. The manager of an old-established shell-factory estimates the women's output after a nine months' experience on a heavy boring machine to fall below the standard of the men by as much as 50 per cent., and to result in damage besides to the tool or shell, the women being replaced by men in consequence. The female labourer, employed in heavy labouring, shows a similar shortcoming; and, although she works at a rapid pace, carries only a light load, with the inevitable effect on output. The manager expresses again another common opinion. The

* The period of training varies from six weeks to three months, the longer period being generally preferred in public technical schools, and the course including a maintenance grant of 25s. a week.

women do better than the men, but the men can do better if they choose. Thus, the women employed on a " roughing " operation beat the output of the men by 15 per cent. during the first week of experience, but are beaten by the same men in turn by as much again during the next week. Another employer writes :—" As regards the amount of work turned out, the women are doing about the same amount as the semi-skilled men (also new to the job), and considerably more than the skilled men who were first employed in this shop " ; and an instance is given in which the women employed in turning the shell body beat the output of the skilled men by 40 per cent., but are beaten themselves in turn by a semi-skilled man.* New brooms sweep clean ; and the women are eager to prove their mettle, while the men remain discouraged. The skilled tradesman, who brings to bear an excess of thought or care, stands besides at some disadvantage on a simple repetition job. Other employers charge the trade union men with a deliberate restriction of output, unlearned by inexperienced female labour. A strained relationship between the employer and the workers reacts necessarily on output. Nor is the habit of a life laid aside in a day, even in war time. A restriction of output is the response of the worker to the policy of the employer, determined to secure a piece-work effort at a time-work wage, and discovering an excuse to reduce the piece-rate with each effort made by the worker to raise his earnings above the time-work level ; and the men remain suspicious, notwithstanding the guarantees given by the Government and the Employers' Federation, against the abuse of the piece-rate during the period of the war.† The women, themselves, learn

* The comparison is not altogether an exact one, assistance being given to the women in setting the tools. But, owing to the inevitable delay in waiting for the tool-setter, the readjustment is said by the employer to offer a disadvantage rather than advantage in output.

† The charge of " restriction of output " is not brought only against the workers. Thus, Professor Gerald Stoney says in his Presidential Address to the Engineering section of the British Association, 1916 :—

> " If the Armament Ring in this country had taken such a view when it was found what an enormous supply of munitions was required, it is doubtful if there would have been such a shortage as there has been. Hundreds of firms were willing and anxious to help in the production of munitions, but when they offered their services they were met in many cases with a blank refusal, and in all cases with little encouragement. And when, under pressure from the Government, the Ring accepted outside help, in many cases the conditions imposed on the sub-contractors were unfair in the extreme, apparently the whole idea of the Ring being to make all the profit they could out of the troubles of the Empire. It has been just as difficult to persuade the Armament Ring to give up what they thought was their monopoly and to bring in outside works to help in the production of munitions as it has been to persuade the Trades Unions to forego trade customs and to enable outside sources of labour to be employed, such as women and other unskilled workers. But both have had to do it. In other words, " Dilution of Works " has been as difficult to effect as " Dilution of Labour," and the position of both the Armament Ring and of the workman would have been very different if they had consented freely to it when it became obviously necessary for the safety of the Empire."

the tricks of the trade after enough experience. Thus, in a national shell factory, recruiting in the neighbourhood of an old-established fuse factory, the women remain at a flat level of time-and-a-third on piece-work, but speed up at once to time-and-a-half and double time upon a definite assurance being given by the management not to reduce the piece-rate. Meanwhile, the women, employed in the old-established fuse factory, refuse to go on piece-work at all, notwithstanding a promise of a rise in wages, and prefer to remain on premium bonus and secure at least the time-rate. The worker, faced with the alternative of "sweating" or "slacking," cannot be blamed because he prefers the latter. In the duel between capital and labour for the mastery of wealth, the ways of neither side are inspiring; but the fault lies rather with the employer enjoying than the worker deploring the system of private profit-making. But, apart from the charge of deliberate and wanton restriction of output, which may or may not be proved against the workers, an old hand acquires, consciously or unconsciously, a certain habit of reserve, as a means of self-preservation against the continual speeding-up on a repetition job;* and this habit is unlearned by inexperienced female labour. The women err on the contrary towards the other side and work themselves out. They are said for this reason to vary more than the men in output, and tend to fall off at the end of a long shift, or in the latter days of a long week, while no small number of women break down and drop out altogether.

But, although female labour shows certain obvious physical limitations, the women are not lacking in mechanical aptitude. One firm remarks an extraordinary wear and tear on the tools and accuses the women of "driving the machines to death"; but the exceptional pressure at which the factory is running must also be taken into account. The representative of a great armament firm, employing many thousand women in shell-making declares on the contrary:—"The quality of the output leaves nothing to desire. The amount of scrap is less than half per cent." A second employer writes:—"The women have spoiled very little work, and the learning period required for each process has varied

* Sir George Newman, M.D., Medical Officer of the Local Government Board and Chairman of the Health of Munition Workers' Committee, writes significantly: "It is not surprising that where employers, following tradition rather than experiment, have disobeyed physiological law in the supposed interests of gain—and for a century this has been almost universal—the workers have themselves fallen very commonly into a tradition of working below their best during their spells of labour. In so far as hours of work in excess of those suitable for maximum efficiency have been imposed during the last two or three generations of modern industry upon the workers, a tradition of slowed labour must necessarily have arisen, probably in large part automatically as a kind of physiological self-protection. Without some conscious or unconscious slackening of effort, indeed, during working hours of improper length in the last, the output might have been even more unfavourable than we know it to have been for the hours of work consumed." (See Health of Munition Workers' Committee: Report on "Industrial Fatigue and its Causes," Memorandum No. 7. Cd. 8213.)

from one day to three weeks. The manager would certainly like to keep them for general engineering work after the war." A third firm notes the high standard of workmanship reached by the women employed as skilled "fitters" on non-repetition lathe work in the tool-room; while the skilled men to whom the fine "gauges" are shown refuse at first to believe in a woman craftsman, and accuse the teacher of the pupils' work, discovering only another woman. The standard of workmanship is as high in the "gauging" sheds, although the comparison is less exact between men and women, owing to the readjustment made in the process. "The ultra specialisation has resulted in an efficiency such as cannot generally be obtained by a highly skilled male inspector using a large number of gauges. Women have achieved extraordinary proficiency in detecting loose base plugs or loose copper-bands at the inspection bench."* Women are rapid learners, although less ambitious than men, and more content to remain on one operation. The combination of qualities is valuable on repetition work. The need of female labour for supervision and assistance in setting the tools is not either exceptional, as the worker gains in experience. A staff of women, whose service is measured by weeks or months, stands necessarily at some disadvantage against a staff of men, whose service is measured by years. Thus, in an old-established shell factory, employing semi-skilled men before the war, the proportion of "toolsetters" to machines is raised from one to each twelve or fifteen to one to each eight or ten after the entry of female labour. In another factory, also established before the war, 60 per cent. of the men adjust the tools themselves in one degree or another, the women being dependent entirely on the "tool-setter." But the comparison lies in both cases between experienced men and inexperienced women; and in new factories established since the war and employing equally inexperienced male or female labour, the amount of supervision is said by more than one manager to be about the same for each, the proportion of skilled men falling as low as one "tool-setter" to 25 machines with up-to-date methods and machinery. Nor is a woman debarred by her sex from following the example of semi-skilled men and learning to set the tools herself. The process is a light, although a delicate one, and better adapted to feminine capacity than many machine operations. Success, too, is not a matter of long experience and rather of natural aptitude. In point of fact, not a few women have learned already to adjust the tools themselves in one degree or another and prefer to do so in order not to lose time in waiting for the "tool-setter," and a woman herself is promoted to the post. An employer, introducing 500 women on 6.2 and 8.2 shells, declares that the factory will soon be run by female labour throughout from the office to the tool-room, the "tool-setter" to the labourer,

* *Notes on the Employment of Women on Munitions of War.* Issued by the Ministry of Munitions, 1916.

with only himself and one experienced "fitter" in charge, and will rival in output any other in the country before or since the war. But the praise lavished by the employer on the woman munition worker surprises none as much as herself. "We have always misunderstood women," exclaims a young manager, professing himself a recent convert to feminism, "women are wonderful." Mechanical aptitude, intelligence, capacity for accurate and conscientious work, sense of responsibility, initiative, courage, endurance, no human virtue is not shared by women in industry. The masculine monopoly of muscles itself is threatened by a feminine Sandow. Such are the discoveries made by men about women in war-time.

Wages.—Shell-making, following a pronouncement by the Minister of Munitions, belongs to the category of *semi-skilled* trades, excepting in the tool-room; and in so far as L.2 is applied in controlled establishments, or in other shops by means of arbitration, since February, 1916, the women are entitled to a standard rate of £1 a week of 48 hours, raised to 24s., April, 1917,* together with the men's piece-rate; a reduced scale being fixed for young girls under 18 years of age. But the actual earnings vary considerably between one factory and another, although less than before the enforcement of L.2. Thus, a railway company running a national shell factory, staffed entirely by female labour, fixes in the autumn, 1915, a time-rate of 22s. a week of 45 hours, on the basis of the men's time-rate of 28s. a week of 54 hours, paid by a local armament firm to semi-skilled mechanics, the piece-rates being estimated to work out at time-and-a-third. A deduction from the time-rate, on account of a reduction in the hours of work, shows a departure from the practice of the trade. The women operate besides a certain turret lathe machine, reserved before the war to skilled tradesmen, and are entitled in so far to the full trade union rate of wages. Nevertheless, the company shows a rare sense of equity, and piece-workers earn time-and-a-third rising to time-and-a-half and double-time on favourable operations, together with the men's overtime allowances. The output corresponds in excellence, and yields, after only a few months of experience, an increase of 16 per cent. on the estimate made for the factory by the local armament firm, while the amount of supervision is reduced to a minimum, one skilled man being employed to as many as 22 women. The manager expresses a complete satisfaction with female labour. However, the local armament firm, introducing women about the same time in shell-making, adopts another policy, making no distinction in the rate between shell and fuse or cartridge workers; and the men's time-rate, or basic rate, is reduced from 28s. to 14s. a week, or by just one-half, although raised afterwards to the standard of L.2.

* Under Clause 1 (*a*) (ii.) of Order 49, the women are entitled to a higher rate under special circumstances. (See page 36). But the clause is not applied except by arbitration.

But a scrupulous regard for the rate "customarily paid for the job" remains exceptional even in national factories. A common standard adopted by the Government, in the spring and summer, 1915, was 17s. a week of 54 hours, and 19s. for a charge hand, against 28s. and upwards paid to semi-skilled men, piece-workers earning time-and-a-quarter or time-and-a-third. A higher standard was fixed in the autumn, in order to comply with L.2, the time-rate being raised to £1 a week of 48 hours, 22s. for a charge-hand, and 30s. for a supervisor, and piece-workers earning roundabout 25s.* a week of 48 hours, or 35s. a week of 63 hours, together with the men's overtime allowances or time-and-a-quarter for the first four hours, time-and-a-half afterwards or on night-shift, and double-time on Sunday-shift.† April, 1917, brought again another advance of 4s.‡ a week, raising the standard of £1 a week of 48 hours to 24s. Nor are men's earnings unknown in the tool-room; and the female "fitter" or "tool-setter," employed on piece-work in national factories, earns a sum as high as £5 and £10 a week at the rate "customarily paid for the job."§

But, outside national factories, the method of payment and earnings vary indefinitely, the inequities being stereotyped under the Munitions of War Act. The National Federation of Women Workers secures for its members a comparatively high standard by means of arbitration; and, in 1917, a basic rate as high as 28s. a week for mechanics on premium bonus, a time-rate of 30s. for "gaugers" or "examiners," and 40s. 6d. for "tool-setters." But a rate higher than the standard is rare except for organised workers, and varies below indefinitely before the making compulsory of L.2, showing a difference of 50 to 100 per cent. between two factories working within a few miles of each other. Thus, a shipping firm, running a small factory on a commission basis, fixes in the

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* Before the last advance of wages, April, 1917. (See page 40).

† Sunday shift is not worked in national shell factories working a 12-hour shift.

‡ Free travelling is sometimes allowed as well in out-of-the-way districts without local housing accommodation.

§ An application form for employment and hostel accommodation at Woolwich Arsenal, 1917, where the earnings are comparatively high, includes the following "scale of earnings" in reference to women over 21 years of age.

"Percentages of females eligible for this hostel whose earnings for a typical working week (including day and night shift) fell between the various amounts shewn below:—

a10s. to 15s.	3 per cent.
a15s. to 20s.	5 ,, ,,
20s. to 25s.	9 ,, ,,
25s. to 30s.	12 ,, ,,
30s. to 35s.	18 ,, ,,
35s. to 40s.	7 ,, ,,
40s. to 45s.	11 ,, ,,
45s. to 50s.	7 ,, ,,
50s. to 55s.	3 ,, ,,
55s. to 60s.	2 ,, ,,
Over 60s.	23 ,, ,,

a These low earnings were due to short hours worked by some women."

autumn, 1915, a time-rate of £1 a week of 39 hours, or 25s. a week of 45½ hours, according as the women work 6 or 7 shifts of 6½ hours, and the piece-rates work out at time-and-a-quarter or time-and-a-third. Overtime is not paid, even on Sunday or night shift. But the rate is comparatively high, and the workers are not dissatisfied. A neighbouring engineering firm, running a similar shell factory for profit in the ordinary way, fixes instead a time-rate of 10s., 12s., or 14s. a week of 45 hours, according to age, and the women *remain on time-work* month after month, although the terms of L.2 are secured at last. A third firm adopts a third standard. The women are placed on piece-work after only a short period of probation; but the men's piece-rate is reduced by about one-third on the ground that the men instruct and assist the women and set and grind their tools as well as their own. Nevertheless, the women make good money; and the earnings range from 32s. on a "roughing" operation, to 68s. on a "nosing" operation in a week of 71 hours, with overtime in addition to the extent of £1 a week on night-shift. In fact, the women earn almost as much on light operations as the skilled men employed before them, notwithstanding a reduction in the rate from 5d. to 3d. a shell; so that the manager, prejudiced at first against female labour, claims even an advantage in production. Meanwhile, inexperienced men employed in the same district under similar circumstances secure a standard of 28s. a week with war bonus in addition,* or corresponding piece-rates.

Nor is the district unique. Two different methods of payment are even discovered in two neighbouring establishments run by the same firm in the same locality. In the first factory, the method is piece-work, the men's piece-rate being reduced by about two-thirds. "If we paid the women the same rates as the men the earnings would be £12 a week," a representative of the firm declares to an official of the National Federation of Women Workers. But the skilled men in question were employed only in order to start the machines and before the adjustment of "jigs," so that the comparison is not exact. Nor are the women discontented and earn an average of 33s. a week of 63 hours; and rapid workers as much as £3, £4, and £5, on the favourable operations, although the piece-rates are said by a local tradesman to be fixed on a lower scale than generally secured by semi-skilled men employed on similar work. The firm has not either any cause for complaint, the output of the factory being trebled; while the amount of supervision falls to a minimum, and one "tool-setter" is employed to as many as 25 machines. In the second factory, the method is time-work, the men's time-rate being reduced to 15s. a week of 54 hours, or by about one-half, and the workers remain on time-work after four months of experience. But the women join the National Federation of Women Workers, gaining the support of the Amalgamated Society of Engineers.

* The men's war bonus amounts to from 12s. to 15s., April 1917.

The firm, impressed at last by the fact that the women mean business, concedes at least a war bonus of 5s. a week, raising the rate to the standard of L.2 two months before the making compulsory of the order.

But the determination of the employer to pay to women the rate " customarily paid to women," and not the rate " customarily paid for the job," raises nowhere a deeper indignation among the workers than with a great armament firm, employing many hundred women before the war in small arms and ammunition-making, and introducing many thousand women since in shell-making. Nor is the sense of injustice less, because the firm stands within the law as interpreted by the Minister of Munitions. The method of payment is the employers' own favourite, or premium bonus.* At the outbreak of war the men's time-rate is 5½d., 6d., and 6¼d. an hour. The rate is low, yet not low enough for female labour. With the entry of the women, 1914, the men's time-rate is reduced to 3½d. an hour, raised to 3¾d., 1915, and to the standard of L.2, February 1916. Before the making compulsory of the order, the rates, including over-time rates, work out at 15s., 16s. 6d., and 19s. 6d. a week of 48 hours, respectively, on morning, afternoon or night-shift, with an additional 3s. 9d., or time-and-a-half, raised afterwards to 5s., or double-time, on Sunday-shift; while the premium bonus amounts to anything up to another 1s. a day, a large bonus being earned on a light job, and a small bonus on a heavy job, so that the workers scramble for the fortunate machines. Sunday work is optional in theory, but compulsory in practice; and the women are obliged to consent in order to meet the high cost of living. For the same reason, the women agree to exchange an eight-hour for a twelve-hour shift, although exhausted already from the strain of work. According to a competent authority, the total earnings, taking one job with another and including overtime rates and bonus, average 19s. a week of 48 hours, or between 30 and 40 per cent. less in proportion to output than earned by the men before the war, owing to the difference in the time-rate. The earnings are a few shillings higher after the making compulsory of L.2, the women securing at least the standard; although the men's premium bonus rates are subject to a deduction of 25 per cent., on account of the need of inexperienced female labour for additional supervision and assistance in setting the tools.

The firm, too, cannot claim a readjustment of processes. Each machine, each mechanical appliance, used afterwards by the women was used before by the men. Nor can the firm claim a disadvantage in output. On " copper-band turning " and other small detail operations, the women break the record of the shop, and compare well with the men in general, although falling below the standard on certain heavy machines, receiving in consequence an extra 2s. 6d. a week in order to compensate for the lack of bonus. However, the firm claims an increase in the cost of supervision.

* For a description of the premium bonus system, see page 20.

But the estimate includes instruction to " learners," which expense ought not to be charged against qualified workers ; and not a few women, whose output equals or exceeds the standard of the men, require no more supervision or assistance in setting the tools than the semi-skilled men employed before them, a large proportion of whom were also dependent on the " tool-setter." But the firm promotes even a woman as " tool-setter," although under the modest name of " machine assistant," in order " to save the susceptibilities of the trade unions." The circumspection is not unnecessary. The job is reserved expressly to *fully-skilled tradesmen* under the Shells and Fuses Agreement, to which the firm in question is a principal signatory, and belongs without question to the category of skilled trades ; while L.2 lays down that the *time-rate* as well as the *piece-rate* shall be paid to women employed in the place of fully-skilled tradesmen. Nevertheless, the time-rate is reduced from 47s. 10d. a week to 17s. 6d., raised to 30s. after the making compulsory of L.2, on the plea that the women set only and do not grind the tools ; the firm taking full advantage of the interpretation given by Mr. Lloyd George to L.2, in reference to women employed on *part* of the job of a *fully-skilled tradesman*. Meanwhile, semi-skilled men, promoted by the same firm as " tool-setters," secure the full trade union rate of wages.

Nor is the method of payment equitable in another factory, run by the same firm, although the women making the men's " time " on premium bonus rise from the women's time-rate of 22s. 6d. a week to the men's time-rate of 28s. On the same plea of the need of inexperienced female labour for additional supervision and assistance in setting the tools, the firm devises another but not less effective means of cutting the rate ; and the men's time allowances are reduced by 25 per cent., from 20 to 15 hours for the same job and the women need to work exactly one quarter again as hard as the men in order to make just the men's " time."*

But the full brunt of the abuse of the time-rate falls on the time-worker. Nor is time-work uncommon, a large proportion of workers, " gaugers," " fillers," labourers, remaining necessarily on time-work, owing to the character of the work, the risk of " scamping " or difficulty in measuring output. Thus, the same great armament firm, introducing women during the first year of the war to take the places of unskilled men in cleaning and filling shells, reduces the men's time-rate of 26s. a week to 14s. for women over 21 years of age, and to as low as 8s. for young girls, with only a war bonus of 1s. a week in addition ; while the men's overtime allowances are reduced from time-and-a-quarter to time-and-a-fifth, and from double-time to time-and-three-quarters on Sunday shift. The terms of L.2 are also not secured, even after the making compulsory of the order, and only the standard laid down by the Government in

* Under Order 49, the deduction allowed from the rate on this account is limited to 10 per cent., even for women taking the places of *fully-skilled tradesmen*.

reference to women's trades. A few odd women were employed in shell-filling in certain districts before the war, and the Minister of Munitions gives the advantage to the employer in the interpretation of L.2. Nor are time-workers always content, although L.2 is applied, and discover an injustice in securing only the standard of 18s., 20s., 24s., a week of 48 hours, while piece-workers earn 30s. or upwards. The female labourer, the " bogey runner," the truck and tray cleaner, employed on men's work, as heavy or heavier than any in the machine sheds, complains especially. Indeed, the worker meeting the displeasure of her employer, learns a new form of punishment, and finds herself transferred from the machines to labouring, without even the option to " up and off " enjoyed before the war. The advantage is not either always with the piece-worker, and more than one firm fixes the piece-rates so low that the workers fail to make time and ask to return to time-work, although the earnings are made up by the firm each week to the statutory standard. Other firms refuse to adopt piece-work at all, even in the machine sheds, on the plea that time-work shows the local practice of the trade, and the employer sees no reason to change. The women have not learned from long experience to play " ca'canny," or withhold a piece-work effort at a time-work wage; and a piece-rate is unnecessary in order to speed up " patriotic female labour." The abuse of the time-rate is not either without effect, because the women are employed on piece-work and secure the men's piece-rate. The difference on the overtime rates alone amounts to a substantial sum on prolonged overtime, night or Sunday shift. But the value of the time-rate is not always appreciated by inexperienced workers earning comparatively high wages on piece-work, and only the employer is alive to his own advantage. A war bonus of 2s. 6d. or 5s. a week shows a not uncommon means adopted by a firm, whose intention is to employ female labour after the war, in order to comply with L.2 without the necessity of raising the time-rate. The fact is not without significance. The workers discover another injustice in the low scale of rates fixed by the Minister of Munitions for young girls, and claim at least the men's piece-rate. Nor can the employer show an advantage in training to the young worker or a disadvantage in output to himself. A simple repetition job is learned in less than three weeks, and young girls compare well with women in output on light repetition operations. Meanwhile, the effect is to encourage the employment of young girls, knowing less than others how to spare themselves on heavy men's machines, contrary to the recommendation of the Health of Munition Workers' Committee. Thus, a number of women employed on the 4.5 shell and complaining of the physical strain involved in the minding of more than one " roughing " machine, explain how they find themselves replaced by young girls at a lower rate of wages, as only answer by the firm. The output per worker is increased, but the output per machine is reduced, and only the employer gains a profit.

But abuses belong to every variety. With one firm, the men are paid full time during a Zeppelin raid, while the women are subject to a deduction from wages, although paid a lower rate. With a second firm, the men secure time-and-a-quarter during a breakdown, and the women no more than bare time, although both are employed on piece-work and the loss of earnings is the same for each. With a third firm, the women are refused the men's overtime allowances, and paid a lower scale instead, or nothing at all. The women explain another time how they are employed part in shell and part in fuse-making, the terms of L.2 being evaded, because the latter is only a " women's trade." The complicated method of payment, inseparable from the premium bonus system, forms again a common source of complaint. The worker never knows how much wages is due to her, or how the sum is arrived at by her employer. The result is a constant stream of accusations by the worker against the firm, on account of petty deductions from wages ; and the firm is not less to blame, because the charges are unfounded. Moreover, L,2 is not always applied, except in controlled establishments, and rates of wages as low as 12s. and 13s. a week are discovered in railway works converted to shell-making, even in 1917, although the workers come under Section 7 of the Munitions of War Act, being restricted in moving from one employer to another. The abuse is remedied by arbitration ; but arbitration is not easy to secure by inexperienced and unorganised women. Meanwhile, according to a statement by the Minister of Munitions, the contract price for shells has been reduced by 40 per cent., and by a " good deal more " for particular kinds. But what part of this national saving has been effected at the cost of " cheap and docile female labour," the statement fails to reveal.*

II.—Miscellaneous Trades.

A detailed account of each trade is unnecessary. The same phenomena reappear as in shell-making. In general engineering and tool-making shops, where female labour was prohibited altogether before the war and not admitted until after the making compulsory of L.2, women are introduced on every variety of skilled or semi-skilled operation, turning, milling, screwing, drilling, boring, slotting, shaping, grinding, filing, scraping, gear-cutting, core-making, non-repetition lathe work, fitting and bench work in the tool-room ; and women take the places of unskilled men and boy apprentices. In a howitzer factory, women are employed on an equal variety of skilled operations, screwing the breach blocks, turning and milling the firing pins, sight racks, steel rings and parts of gun-mountings, working even to micrometer gauge. In a machine-gun factory, the whole staff is female, although working under male suvervision. Another firm discusses a scheme for a three years' apprenticeship entered at 18 years of

* According to the statement of more than one employer, the contract price, fixed on the assumption of female labour, will not admit the payment of the men's standard of wages.

age for women of secondary education in aeroplane engine-making. Women enter also into aircraft and ship-building, and qualify in boiler-rivetting, tube and dynamo-testing, glanging, crane-driving, turbine building, segment preparing, blade-forming, brazing and soldering and as oxyacetylene welders. While, in the cycle and motor trades, the electrical trades, small arms, gun-part, fuse and cartridge-making, and other branches of engineering, to which female labour was admitted before the war, women are promoted from lighter to heavier, less skilled to more skilled operations.

The procedure follows again the same lines as in shell factories. Thus, in an old-established fuse factory, the women, taking the places of semi-skilled mechanics during the second year of the war in turning the fuse bodies on capstan lathes, the men are promoted as " tool-setters " in so far as they show the aptitude or respond to special training,* and the women replace them on the machines, working under their instruction and supervision. A slight readjustment is made in the process, and an old-fashioned " cutter " is exchanged for another, in order to accelerate speed; but the improvement reflects no feminine disability, altering nothing in the nature of the skill or effort required in the operator. The men, remaining on the same machines in an adjoining factory, enjoy the same advantage. Nor is other deficiency of female labour declared by the manager. The amount of supervision is not exceptional, the proportion of " tool-setters " to machines remaining as before, or one to seven; while the output is well maintained, although the machines are comparatively heavy in character, and the hours of work are 78 a week. A woman is liable, perhaps, to break down in health, but the burden is borne by herself and not her employer. A clear sex distinction appears only in wages; and the men's time-rate is reduced from 7¼d. to 3¾d. an hour, or the rate paid by the same firm to other women employed side by side on women's machines. However, the women secure the men's piece-rate, and the earnings, including overtime rates, amount to £2 10s. and £3 a week of 78 hours, or only 3s. to 4s. a week less than earned by the men showing the same output, owing to the difference on the overtime rates. " The women are paid too much," explains the rate-fixer, " and earn more by £1 a week than many old hands employed on women's machines." But, unlike the position in shell factories run by the same great armament firm, the women in question form only a small minority of the female staff, and the concession of the piece-rate forms a matter of comparative unimportance to the employer. Moreover, the piece-rate is likely to be changed after the war. Before the war, 15s. a week was a standard wage for female labour, 18s. was a maximum, £1 a week was unknown, even on piece-work, and a woman must not expect to continue at a man's high level of wages, although allowed to remain on a man's heavy machine, to which she has proved her

* " Tool-setting " is a more skilled operation in fuse than in shell-making, owing to the greater variety of tools to be set. Nevertheless, the female " tool-setter " is not unknown in the fuse factory.

full claim by her present extraordinary feat of endurance. The intention of the firm is taken as a matter of course. Other women are promoted by the same firm from the short to the long " draws " in cartridge-drawing, and secure on the same principle the piece-rate without the time-rate. The press is heavy to wield, the worker being exposed besides to the heat of the furnace, although the job is semi-skilled. But the women are picked workers, belonging to a robust type, hollow-ware and metal workers, cooks and char-women, and hold their own with the men in output. Nor is the process changed. The additional assistance, given by labourers since the war in order to save the time of the operator in running the trollies, the men remaining on the same machines enjoy side by side with the women.

But the women are not always as fortunate, and secure at other times neither the piece-rate nor the time-rate. With a second firm, displacing male by female labour on the same capstan lathes in fuse-making, the men's time-rate is reduced once more from 7½d. to 3½d. an hour ; but the piece-rates are re-fixed on the basis of the women's time-rate on the self-same plea of an up-to-date " cutter." But the women are modest and count themselves fortunate to earn an average of 30s. a week of 63 hours. With a third firm, introducing women in the same way in turning the fuse bodies, the men's time-rate is reduced even to a lower scale, and the women remain on time-work, starting at 12s. 6d. a week of 53 hours, and rising only to 15s. after four weeks of experience. Nor are the terms of L.2 secured at last and only the standard laid down by the statutory order in reference to women's trades. A fourth firm, displacing a whole staff of men and youths by women and girls in fuse-making, tries on the same game ; and the men's time-rate of 28s. to 39s. a week is reduced to 12s. for adult women, employed on men's machines, point-grinding, fluet-cleaning, backing-off, hardening, sand-blasting, trueing, piece-workers earning a maximum of 16s. ; while the youths' rate of 14s. a week is reduced to 6s. for young girls, employed on youths' machines, piece-workers earning 8s. or 9s. But the firm had yet to reckon with the National Federation of Women Workers. In the autumn, 1915, the women organise and appeal to arbitration, securing an award, April 1916, fixing the terms of L.2 for women employed on " work customarily done by men," and 18s. a week of normal hours, or 2s. less than the statutory standard for women employed on " work customarily done by youths," with a lower scale for young girls.

Nor is the abuse of the rate less in the electrical or other women's trades, because the workers are " sweated " already. Thus, a cable-making firm, employing women before the war in the braiding of electrical wires and promoting them afterwards in the place of men on night-work, following the relaxation of the Factory Acts, 1914, discovers yet another opportunity to cut the rate, and the men's time-rate of 4½d. to 6d. an hour is reduced to 2½d., only a few fortunate women rising to 3d. at the discretion of the foreman, and

the workers remain on time-work. "Overtime rates are not customary on night-work," the firm explains to the women's union, and the custom is only observed.

The abuse of the rate is also not confined to private firms; and Government Departments take full advantage of the interpretation given by Mr. Lloyd George to the Treasury Agreement, reducing the men's time-rate without compunction, although the women secure the men's piece-rate in so far as the job has not disappeared. Thus, in Woolwich Arsenal, where no woman had ventured since the Crimean War, women are introduced in the autumn, 1915, and take the places of men in fuse inspection. The process consists of fifteen small hand operations, one of which each worker performs each day in rotation, but none of which requires longer than a few minutes to learn and only one the exertion of muscular strength; while the final inspection being alone skilled remains with the charge-hand, herself a woman in the women's team. The sexes work in separate teams and sit at separate tables, but no other readjustment is made in the process. Nor is the output hard to measure, although the workers are employed on time-work, and according to a competent authority the first women's team introduced in the Arsenal exceeded the standard of the shop by 40 per cent. after only one week of experience. The women were eager to prove their mettle, and the output was no doubt exceptional; but the experiment showed at least a full sex equality. Nevertheless, the time-rate is reduced from 31s. a week of 48 hours with a 4s. war bonus to 17s. with a 3s. war bonus, and from 41s. with a 4s. bonus to 19s. with a 3s. bonus for the charge-hand. The men have not either a long experience, but are imported from outside trades in the same way as the women. Indeed, the male charge-hand, by profession a grocer's assistant, shows distinctly less qualification than his woman colleague, a university woman having undergone a course of three weeks' special training. Incidentally, similar work is performed by women and girls elsewhere, at rates from 1½d. to 3¾d. an hour, although raised to the statutory standard after the issue of the orders in reference to women's trades. Whether the men or the women are paid too much or too little, the question depends for an answer on the standpoint of the employer or worker. From the point of view of mere humanity, a minimum wage of 31s. a week, with a war bonus of 4s. in war-time appears a not extraordinary standard for an adult worker against the ordinary income of an employer.

However, in general labouring, load carrying, floor-swabbing, trolley-running, truck and tray cleaning, tube-cleaning, &c., women compare less favourably with men than on light mechanical operations, and female labour shows a definite handicap in the lack of muscular strength. A woman carries only about one-half a man's load; and, although she works at a rapid pace, the effect on output is inevitable. Three or four women take the places of two men. The women are exempted at other

times, as in the shipyards, from part of the men's duties involving heavy lifting or drawing, exposure to weather or danger. Nor are the women paid the men's rate of wages. Nevertheless, taking into account the difference in output, the earnings of the sexes are not altogether unequal, a rise in wages being forced in more than one factory by the reluctance of the women to undertake at all rough or heavy out-of-door work. During 1915 and 1916, a time-rate of 24s. a week or 4s. above the standard of L.2 is not uncommon on out-of-door work against 26s. or 28s. paid before to unskilled men, although falling within doors to the statutory minimum. More than one employer declares female labour to be uneconomical in general labouring, and his intention to replace women by men at the earliest opportunity after the war.

But a more significant departure from the practice of the trade appears in the admission of women since the war to work "customarily done by skilled tradesmen." Nor was female labour tolerated by the trade unions in general engineering and tool-making shops, except on "purely automatic" or boys' operations, until after the making compulsory of L.2. But a seven or five years' apprenticeship is not crammed in the same number of weeks or months, and wide readjustments take place in the process. Thus, with a general engineering firm displacing skilled by female labour on a hydraulic press, the skilled man is replaced by himself, a semi-skilled man, and a woman; but the part of the latter is confined entirely to working the lever of the machine under the direction of the skilled man. With a second firm, "diluting" skilled labour in the same way as before, the "roughing" and "turning" of machine parts performed as one job by a skilled man, himself and a woman divide between them; but the man keeps the whole of "finished" or skilled part, and the woman takes only the "roughing" or unskilled part, working only under skilled supervision. With a third firm, displacing again skilled by female labour, the women do no more than fetch and carry, relieving the skilled men of labourers' duties. The woman plays in each instance the part of an unskilled assistant or boy, although employed on part of the job of a skilled tradesman, and the case is one of *dilution* but not *substitution* of skilled by female labour. Nor are the women classed by the employer except as unskilled labour, and paid the bare statutory standard, or about one-third less than the rate generally paid to unskilled men. But readjustments are not confined to new sub-divisions of labour. Thus, with a general engineering firm, displacing skilled tradesmen by inexperienced women, on old-fashioned "engine" or "centre" lathes, the character of the machines is transformed entirely by means of "jigs," and other "fool-proof" appliances, in order to guide and assist the operator, the skilled job becoming automatic or semi-automatic, and the women being dependent on the "tool-setter." The case is common in general engineering or tool-making shops, exchanging from "all round" and "non-repetition" private work to "specialised" and "repetition" munition work. The radical

nature of the change is not either unrecognised by the trade unions; and, provided the machines were adjusted by "jigs," female labour was tolerated in general engineering and tool-making shops before the making compulsory of L.2. The women secure again the statutory standard for semi-skilled labour, with a few shillings extra on piece-work. But the readjustments are not always as substantial, and the women take, although not the whole, a skilled part of a skilled job. Thus, with a tool-making firm, introducing female labour on "centre" and "turret" lathes, the women are confined to comparatively light and straightforward operations, and require additional supervision and assistance in setting the tools until they gain in experience. But no other readjustment is made in the process; the "brains" are put in by the operator and not the machine; and the job remains in a category reserved to fully-qualified or skilled tradesmen. Nevertheless, the employer classes the women without more compunction than before as semi-skilled labour, reducing the men's rate by about one-half, or from 10¾d. and 11½d. to 5¼d. an hour. Before the issue of Order 49, February 1917, these instances are common and typical on the Clyde, where 13,000 women are introduced in general engineering and tool-making shops during 1916; the employer establishing under cover of female labour a new line of demarcation more favourable to himself between the skilled and semi-skilled worker. The women are also not behind the men in output on light operations; and the need of female labour for supervision is not exceptional as the worker gains in experience, the women learning to adjust the tools themselves in one degree or another on their own machines. Indeed, more than one employer admits an actual advantage in female labour; * while he secures to himself the whole of the

* "The following specimen particulars, are given by the Chairman of the Midland Railway with regard to women employed in the place of skilled men on semi-automatic punches, drills and similar machines:—

No. 9. Shop.

Average percentage earned by men on group No. 17, four weeks ending September 30th, October 7th, 14th, and 21st	42.5
Average percentage earned by women on group No. 17, week ending November 18th ..	49.0
Excess of percentage earned by women ..	6.5

None of the women in this group had been working more than three weeks, and they included several who were quite beginners and only earned a small bonus. The men were classed as skilled labour, and many of them had been working the same type of machine for years. It should be noted that the women were not competent to "set up" their own machines—when they are they will be paid a full man's wage—and that certain number of skilled men had, therefore, to be retained as supervisors.

In other groups I find that the excess of 'female percentage' (to coin a term) rises to as high as 20 and over, the men formerly receiving 43 per cent. bonus, and the women now getting 67 per cent.

In individual cases there have been some amazing results. One woman earned £2 17s. 6d. (including overtime, bringing up the hours to 10¼ per day) during her third week, and it is a fairly common thing to find premiums ranging between 75 and 85 per cent. which in the case of a man receiving the full basis wage would bring his earnings up to over £4 a week."

increment due to mechanical methods of production, the output per machine being as much as doubled or trebled by means of "specialization" or mechanical improvements. However, some employers complain of a new expense or inconvenience caused by legal or customary restrictions on female labour; the worker exacting another consideration and throwing an extra responsibility on the employer. A woman cannot turn as a man from one job to another; requiring special relief from rough or heavy duties, or special assistance in order to reduce the physical strain of the work. Separate sanitary and canteen facilities are awkward again to arrange in a small or old-fashioned establishment; while unaccustomed regulations for health protection are as inconvenient to observe. An employer, his own works manager, regrets even the old license to swear. Nor is the employer without a sense of chivalry or anxiety to protect from harm the women working under his care, because his imagination fails to include a living wage, and provides not infrequently for their safety or comfort beyond the legal obligation. But a complaint against female labour comes less often from the employer than the men, who find themselves more and more confined to heavy or troublesome operations, unsuited to inexperienced women. The worker bears a heavier burden without compensation in higher wages.* On the contrary, the tough job is seldom the profitable one, the earnings being reduced on piece-work; and the men complain how the women take the fat jobs at a lower rate, and themselves are left with the lean jobs at a no higher rate than before, and only the employer reaps a profit. Before the issue of Order 49, February 1917, a time-rate higher than the statutory standard, or £1 a week, is almost as rare in skilled as in semi-skilled or unskilled trades, and practically confined to workers standing up for themselves. In the well-organised Tyne district, a single branch of the National Federation of Women Workers including 6,000 members, the recommendations made by the Clyde Dilution Commission in reference to women employed on part of the job of a *fully-skilled tradesman* and forming the basis of Order 49, operate already during 1916; and local agreements cover between 500 and 600 women earning time-rates as high as £2 10s. and £2 15s. a week, at the end of the year. The National Federation of Women Workers secures also by means of arbitration rates as high as 7½d., and in one case 8d. an hour, for a number of its members employed on work of an intermediary character between skilled and semi-skilled. Again, during 1916,

* The disadvantage caused to the men from the admission of inexperienced female labour is recognised in the agreement between the Clyde Dilution Commission and the Clyde and West of Scotland District Committee of the Boiler-makers and the Iron and Steel Shipbuilders' Society. The clause lays down: "The relaxation of existing demarcation restrictions or admission of semi-skilled or female labour not to affect adversely the rates customarily paid for the job. In cases where men who ordinarily do the work are adversely affected thereby, the necessary readjustments shall be made so that they can maintain their previous earnings."

the small body of educated women, trained by the Women's Service Bureau of the National Union of Women's Suffrage Societies, secure a comparatively high standard in skilled trades, although not the rate "customarily paid for the job"; and female "fitters," "turners," "tool-setters," &c., demand a minimum of 8d. an hour, with a rise to 9d. after a month of experience, refusing to accept employment without. The skilled women, trained in technical schools, obtain in the same way a time-rate as high as 30s. or 35s. a week. Piece-workers, too, earn sometimes high wages, amounting to several pounds a week, and even the piece-rate "customarily paid for the job" with a scrupulous employer. Thus, a tool-making firm, an old-established "union" shop, introducing women on "centre" lathes and maintaining the men's standard on piece-work with strict exactitude, discovers no opposition from the trade unions, even before the making compulsory of L.2, and remarks only on the high quality of the output achieved by the women and splendid assistance given them voluntarily by the trade union men. But these instances are comparatively rare. The application of Order 49 is also not always a remedy; and, in the absence of other interpretation by the Minister of Munitions, the employer confines the term *fully-skilled tradesman* to the *fully-qualified* or apprenticed tradesman, the large number of women employed in the place of less qualified men securing only the statutory standard of 24s. a week, or a rate of a few shillings higher, although the trade union rate is 44s. to 55s. a week.* Nor is the all-round advance of 5s. a week, secured by the men, April 1917, secured by the women; the employer declaring that the sum is a "bonus," in order to meet the extraordinary rise in the cost of living, and not an advance in the rate "customarily paid for the job," to which alone the women are entitled. In the eyes of a masculine employer, the extraordinary rise in the cost of living is not a matter of feminine concern.

However, one exception appears to the rule, and women taking the places of boy apprentices secure a higher and not a lower rate of wages. A young girl, herself, tends to be paid more than a boy of her age. Thus an employer, compelled to employ women in the place of apprentices on account of a shortage of boy labour, complains how he pays to a woman a full subsistence wage of 12s. or 14s. a week, instead of an apprentice's wage of 5s., and loses the value of his training besides. A woman remains a woman and a boy becomes a man. But the complaint is exceptional, and belongs to the small and old-fashioned employer, acting as his own works manager and objecting as much as his men to the presence of women in the shop. Other employers express a definite preference for female over boy labour. The women show a superior

* In some shops, employing skilled tradesmen together on the same machines with mechanics dependent or partially dependent on the "tool-setter" a deduction of 2s. a week from the rate is allowed in the case of the latter.

output and are more reliable and better timekeepers. A young girl, herself, tends to be older and more responsible for her years. The employer, too, is not under obligation of training; and a woman is content to remain and improve her output on one operation, while a boy becomes restless or bored, and expects to improve himself.* The female "tracer," employed in the office shows a similar superiority in output over her boy competitor, and beats him in speed and accuracy of drawing, although without his desire for knowledge or interest in the trade. She has also the advantage in wages, and earns 15s. to 30s. a week against 10s. or 12s. paid to a boy apprentice. But the female "tracer" had established her reputation in the engineering trades before the war, and a woman "draughtsman" was not unknown, the rate being reduced in the latter case from £3 or £4 to £2 a week. A woman remains a woman and a boy becomes a man.

But the substitution of male by female labour in a skilled trade offers, perhaps, its classic example in *oxyacetylene welding*, a skilled hand operation used largely in aircraft manufacture. The process is a comparatively new one. But a period of twelve or fifteen years is long enough to establish a precedent, and oxyacetylene welding was classed by the trade unions as a skilled trade without question by the employer before the war. The fully-qualified "fitter," "boiler-maker," "coppersmith," "sheet iron" or "brass-worker," employed as an oxyacetylene welder, specialised only after serving a full term of apprenticeship; while the unapprenticed mechanic, entering the trade through less orthodox channels, earned at least the full trade union rate of wages. The United Boiler Makers lay down: "That we decide that where oxyacetylene, electric, or Anglo-Swedish machines are introduced on the work previously done by our members, these machines shall be operated by our members." The Sheet Iron-Workers demand even a higher rate for members employed as oxyacetylene welders. The line of demarcation is not either peculiar to the trade unions. The Board of Trade Labour Exchanges class oxyacetylene welding without more hesitation as a skilled trade. A few outsiders had picked up the process in non-union shops; but no trade is blackleg proof entirely, and the fact offers no evidence one way or another. A doubt appears only in minor branches of work,

* The Coremakers discuss the advantage to be gained by their members from the employment of young girls in the place of boys on small core-making: "A lad would not be content to do this kind of work regularly, his ambition would naturally prompt him with a desire to become a proficient core-maker, and he would do doubt during the time he was cheap receive every encouragement from the employer. But considering the number of boys that would be required to do this work it is quite evident that eventually the number of core-makers would be increased to such an extent that our trade would be overcrowded and that there would not be enough of work in normal times to provide above half of us with anything like regular employment." (The Amalgamated Society of Coremakers' *Quarterly Report*, December, 1915.)

A cul-de-sac trade is generally held by men, if not by women, as especially marked out for female labour.

cheap domestic work, paint pots, cycle and motor accessories ; but these branches form only a fringe of the trade. Air-craft building has developed with extraordinary rapidity since the war, and specialisation follows in consequence. One hundred women are employed to-day on standardized parts, where one man was employed yesterday on experiments. But oxyacetylene welding, unlike the semi-automatic machine operations in a shell or fuse factory, belongs by the character of the work itself to the category of skilled trades. The tool or " blow-pipe " is worked by hand entirely, the " brains " being put in by the operator, and not the machine. A loss of control, a lapse of attention or error of judgment, and the white heat of the flame destroys, perhaps, a finished part of a valuable machine. The " weld " cannot either be tested except by destruction, and a high degree of responsibility rests on the operator, even the life of the airman who flies the machine. Indeed, a worker, without faculty for accurate and conscientious workmanship, without discipline of mind and character, fails to qualify at all. The women, achieving a rapid success, belong to a class at least as educated as the fully-qualified tradesman, and are not without special training. In technical schools the course takes three months ; the Women's Service Bureau of the National Union of Women's Suffrage Societies gives a course of six weeks as the minimum period for educated women ; while the employer, training his own work-people, claims out-of-pocket expenses for several weeks or months, although " improvers " are sometimes employed with profit to the firm on elementary operations at the end of a fortnight. But, except on elementary operations, the necessary degree of skill is not acquired by the worker without a comparatively wide and varied practice, the women becoming familiar with several sizes of blow-pipe and various kinds of metal, and transferring with ease from steel to aluminium, " straight " to " corner " welding. The trade is more specialised in character than before the war, and the women tend to confine themselves to small-size blow-pipes and light parts, or are exempted from certain of the men's rough or heavy duties. But, exceptions are not unknown, a woman being discovered on a 10 in. blow-pipe, a tool more than twice her usual size, and handling giant parts with the assistance of overhead cranes. Moreover, " specialisation " results from large-scale and continuous production ; and the women specialise on work within a narrower range than their own individual capacity, and the men on work identical with the women's own. Nor are the women lacking in mechanical aptitude, and come out with credit in official " tests." The experienced men, themselves, remark on the high excellence of the women's output, surpassing even their own on a repetition job in speed and sustained quality of workmanship. But the employer, himself, claims no deficiency in female labour on the type of specialized job upon which the women are employed, and his intention rather to enjoy the advantage after the war. The opportunity is good to test the principle of " equal pay for equal work."

The method of payment is time-work. But, according to the statutory orders, women employed in the place of *fully-skilled tradesmen* are entitled to the *time-rate* as well as the *piece-rate* "customarily paid for the job." However, the employer makes a new discovery. Oxyacetylene welding, although reserved before the war to skilled tradesmen, shows signs of becoming a semi-skilled trade. Indeed, the features of a semi-skilled trade appear already. Witness the adaptability to female labour. The argument runs in a circle. No woman is paid the trade union rate of wages. Hence, no trade adapted to female labour belongs to the category of skilled trades. Hence, no woman is entitled to the rate customarily paid to a skilled tradesman. Nor is the practice behind the theory; and the men's rate is reduced by 50 per cent., or from 8d. to 4d., from 10d. to 5d., from 1s. to 6d. an hour. But, in the tradition of a women's suffrage society, a spirit lies alive to the value and jealous of the rights of female labour. In June 1916, the women, trained by the Women's Service Bureau, form a union, and demand a starting rate of 7d. an hour, with a rise each month as the worker gains in experience, until they reach the full trade union rate of wages. The starting rate is secured at once, with a rise of 1d. an hour at the end of the first month; the starting rate being raised afterwards to 8d. an hour. But, at this point, the employer declares a maximum. One or two firms give way and grant the men's minimum rate of 10⅝d. an hour to qualified women. But the two great aircraft firms, employing the majority of the women in question, stand out and refuse point blank to raise the women's rate above 8d. an hour, although the men's rate ranges from 10⅝d. to 1s. 10d. Nor are the women less determined to secure the men's time-rate, because workers promoted to premium bonus and employed for long hours at high speed earn wages as high as £2 10s. and £3 a week. In August 1915, the Women's Union claims a breach of L.2, and appeals to arbitration under the Munitions of War Act, with the assistance and support of the Amalgamated Society of Engineers. After the usual period of delay, the case is heard in the following November, the award being announced in February, 1917. The terms follow the lines of Order 49, fixing a starting rate of 8d. an hour, with a rise to the full rate after a period of three months' probation, in reference to women employed on *skilled* work, and a starting rate of 5d. an hour, with a rise to 8d. in reference to women employed on *semi-skilled* work. But the crucial point as to which branches of the trade are skilled or semi-skilled the award fails to determine, the matter being referred by the Tribunal to a Sub-Committee; while the women remain at the lower rate until such time as the matter is settled. The award is not either applied except to the two firms concerned in the immediate dispute, and affects less than one hundred workers; the women being left to fight out the battle with the employers, themselves, every inch of the way.* Nevertheless, the union gains

* The award is retrospective to February 5th, 1917, the date of issue of Order 49, the time served already being taken into account in the probationary

a victory, although the fruits are partial and delayed, and creates a precedent for the whole trade. Nor is the achievement owed, except to the women themselves, and the skilled men supporting their cause. The attitude of the Ministry of Munitions toward female labour appears in a statement made by a high official to an informal enquirer into the rates of wages laid down for women in skilled trades during the autumn 1916. " The purpose of L.2 is to preserve the continuity of rates in settled trades and not to establish the principle that women should receive equal pay for equal work." Why the principle is laid down in the statutory orders, or how the continuity of rates is secured without, the speaker fails to explain. However, he adds the significant remark, " the Government and employers have a common interest in keeping down wages."

Trades in which women are employed on work not recognised as men's work before the War.

The Government orders, July 1916, fix a standard rate of 4½d. an hour, for time-workers over 18 years of age, with an additional ½d. an hour in the danger sheds and a lower scale for young girls; while a minimum rate of 4d. an hour, is fixed for piece-workers, with the amendments, October 1916, that piece-rates shall work out at time-and-a-third at least, and overtime allowances be paid according to the custom of the trade. An advance of 1d. an hour for time-workers and ¾d. for piece-workers is secured in addition, April 1917; and the orders, according to a statement by the Minister of Munitions, cover at the date in question 90 per cent. of the women employed in controlled establishments. The standard is sometimes higher in national " filling " or fuse and cartridge factories; a rate of 5d. an hour, or 5½d. in the danger sheds, was not uncommon for time-workers before the April advance, the same standard being guaranteed on piece-work; and the actual earnings being higher than in many national shell factories, on account of a longer shift. Nor is an advance on the statutory standard unknown in private factories, where the workers are organised and appeal to arbitration. Thus, with

period. But no actual effect appears until May, 1917, when the Tribunal orders 15 women to be paid the fully-skilled rate, minus the advance of 5s. a week secured by the men, April, 1917, which matter awaits a further decision by the Tribunal; and the two firms comply in the last week of June following repeated demands of the women's union. Meanwhile, a request by the women's union for the Terms of the Award to be extended to its members employed by other firms is refused by the Engineering Employers' Federation; no small number of oxyacetylene welders failing to secure even an 8d. rate in July, 1917.

a great armament firm, employing many thousand women in ammunition making, the following scale of wages appears at the outbreak of the war :—

8s.	a week of	48½	hours	(net)	for	women of	17 to 18	years	of age.
9s.	,,	,,	,,	,,	,,		18 to 19	,,	,,
10s.	,,	,,	,,	,,	,,		19 to 20	,,	,,
11s.	,,	,,	,,	,,	,,		20 to 21	,,	,,
12s.	,,	,,	,,	,,	,,		21 and over.		

The women are employed on premium bonus, but the earnings, including bonus, seldom average more than 16s. a week. However, the women belong to the National Federation of Women Workers, and in the summer, 1915, demand and secure an advance of 2s. a week, together with certain improvements in workshop conditions. The earnings, including overtime rates and premium bonus, the firm estimates to work out at 20s. 1d. a week of 70½ hours day-shift, or 63 hours night-shift. But the advance in wages fails to cover the rise in the cost of living; while workers, earning a bare subsistance wage, require compensation in a higher standard of living in order to meet a heavier strain of work. The women are not content and appeal to arbitration, securing an award, March 1916, fixing a minimum rate of 4½d. an hour for ordinary adult workers, guaranteed on time-work and piece-work, with a time-rate of 5½d. an hour for female "examiners" or "gaugers," and a time-rate of 5d. an hour in the "danger" sheds. The award is not only secured four months before the issue of the Government orders, but the terms are also more favourable to the workers. The case is not unique.

But the application of the Government orders brings a substantial advance to other firms. Until July 1916, a rate of 3½d. or 3¾d. an hour for an adult woman was common thoughout the ammunition trades. Thus, in an old-established fuse and cartridge factory, the time-rate is 2½d. an hour for adult workers, with a war bonus of 2s. 6d. a week, the piece-rates being estimated by the firm to work out at a maximum of 16s. or 18s. a week. £1 a week is unknown, although many workers have a long experience. The firm hesitates for this reason to introduce women in a neighbouring shell factory, and pay £1 a week to raw recruits. With more than one firm, employing female labour before the war in fuse or cartridge-making, gun-engraving, the women are driven to the verge of a strike by a higher rate paid to other women introduced since to shell-making and whose claim is less than their own. In another old-established fuse and cartridge factory, established before the war in the same Midlands district, the time-rate is a fraction higher, or 3¾d. an hour for women over 21 years of age, with a lower scale for young girls. Piece-workers, working alternate day and night shift seven days a week, earn comparatively high wages, amounting with overtime to £2 10s. a week of 77¾ hours. But the women are strained to the pitch of exhaustion and the exceptional earnings are confined to comparatively heavy operations, performed by men elsewhere, and unsuited except to

a robust type of worker. The stamping of the fuse bodies, although a women's trade before the war, shows a job as heavy as any reserved to men and to which women are since introduced. Nevertheless, the women count themselves fortunate. Until the issue of the first statutory order, July 1916, a rate of 16s.* a week for women over 21 years of age, following the agreement between the Midland Employers' Federation and the Workers' Union, forms the standard of the Midlands. Nor is the rate always as high in unorganised shops or districts. Thus, in a powder-filling factory, the time-rate is 2½d. an hour for workers having less than a ten years' experience, while piece-workers earn 11s. to 13s. 3d. a week in one department, a maximum of 17s. in another, the workers being employed on alternate time and piece-work. However, the women join the National Federation of Women Workers in the summer, 1915, and appeal to arbitration, securing an award fixing a time-rate of 3d. to 3¾d. an hour for workers over 16 years of age, according to experience, and representing a rise of 1s. to 5s. a week in actual earnings. The terms form at least a substantial step towards the statutory standard taken a whole year in advance. A fuse factory, converted from sewing-machine making, shows another typical instance of the unorganised districts. The time-rate ranges from 7s. to 12s. a week of 54 hours, the maximum rate being reached at 19 years of age; while the piece-rate works out at a bare 15s., and the workers alternate as before, at the discretion of the employers, between time and piece-work. Moreover, women and young girls are employed together on identical operations, and the latter earn as much on piece-work, but return to the juvenile rate on time-work. The statutory orders bring again a substantial advance in wages.

But the statutory orders are not applied in every factory. In the electrical and telephone trades, the small metal trades, where the work is part ammunition and part commercial or civilian, " to interfere rashly with wages," according to the Minister of Munitions, " is like sticking a knife into the hands of a clock." The workers are advised a remedy in arbitration. This is to say, a body of women and young girls, without margin of income, working to the limit of human endurance, tied to the employer under the Munitions of War Act, stand free to organise and help themselves. The remedy is heroic. However, the National Federation of Women Workers achieves the feat, and secures the statutory standard in one factory after another. But the workers are not organised everywhere, and a large body of women remain at the pre-war standard of 2½d. and 3d. an hour, with a war bonus of 2s. or 2s. 6d. a week even in 1917, and meet a rise of 65 per cent. in the cost of living by means only of abnormal hours of work.†

* The rate is 1s. less outside the Birmingham district.

† The total number of women munition makers falling outside the Government orders in January 1917, the National Federation of Women Workers estimates at 100,000. The orders are not applied in Ireland until July 1917.

In the small metal trades, where the hours of work are normal, earnings are discovered as low as 11s. and 12s. a week. Nor is sweating confined altogether to part ammunition-making, and rates appear as low as 2¾d. an hour in "safety" fuse and bomb-making several months after the issue of the statutory orders. The women earning the lowest rates are not either the least skilled or experienced. In a telephone factory, where the rate is 3½d. an hour for adult workers over 20 years of age, the manager remarks on the high degree of skill and qualification attained by the older women, many of whom have passed through several departments during a seven years' experience and undergone a training little short of apprenticeship. The value of female labour is no revelation in the telephone trade, and not a few women employed by the firm as "examiners," "assemblers," "fitters-up," compare well in skill and qualification with many so-called "skilled tradesmen," and stand incomparably higher than the inexperienced young men sent out as "inspectors" from Woolwich, and earning 41s. a week of 48 hours in a neighbouring fuse factory. Nor is arbitration always a remedy without effective organisation. In an electrical engineering factory, even a controlled establishment, a Board of Trade arbitrator gives the following award, February 1916:—

Female workers of 18 years and upwards:—	
First 3 months	2d. per hour.
After 3 months (if work satisfactory)..	2¼d. ,,
After 6 months ,, ,, ,, ..	2½d. ,,
After 12 months ,, ,, ,, ..	2¾d. ,,

A war bonus of 2s. a week is paid in addition. But the workers can endure no longer with a rise of 50 per cent. in the cost of living. In December 1916, the women strike and join the National Federation of Women Workers; while the Amalgamated Society of Engineers comes to the rescue, although the quarrel is none of its members. The women return to work, but apply *en bloc* for their leaving certificates, bringing the case before the Munitions Tribunal. However, the Tribunal suspends judgment in order to give the firm another chance to come to terms with the workers. The case goes once more to arbitration, and the women secure at last the statutory standard. Thus, the workers "stick in the knife" themselves, and the "watch" survives the operation. The theory, advanced by working-women, that the statutory orders follow only the line of trade union organisation, shows at least a substance of truth.

Nor can the Government refuse to accept responsibility for the terms of female employment, because the workers are employed in *part* and not *complete* ammunition-making. The engineering and allied metal trades are scheduled under Section 7 of the Munitions of War Act; and the express object of the Government, in taking powers to fix rates of wages and other conditions of female labour, was to protect the worker, restricted by law in moving from one factory to another. In a great munition centre, six months after the passing of the Munitions of War Act, January

1916, a woman ventures at last to appeal to the local munitions tribunal against the refusal of a discharge certificate by her employer. Her wages are given by the firm as 8s. 5d., 10s. 1d., and 10s. 6d. respectively, in the three previous weeks, and she has found a place at 17s. However, the case is dismissed, in order to discourage employers from "poaching." "Sweating" is a less serious offence. The worker, unknown and defenceless, herself is of no account. Since the amendment of the Munitions of War Act, and the presence of a women's representative on local munition tribunals, an applicant is no longer refused a discharge certificate in a gross case of sweating; but, without the support of a trade union, women, least of all an inexperienced young girl, has not always the initiative, the knowledge, the courage, to venture into court at all. A rash interference by the Government with wages acts, perhaps, to the disadvantage of the employer, and causes a possible dislocation of wealth. A rash non-interference acts, certainly, to the disadvantage of the worker, and causes an actual damage to human life and health.

Hours of Work and General Conditions.

The hours of work vary in munition factories. A 12-hour shift is not uncommon, with two breaks of an hour for dinner and half-an-hour for tea, and an alternative shift on Sunday, or the Sunday shift is dropped altogether. An 8-hour shift, with a break of half-an-hour, or a week of 45 hours, exclusive of meal times, and an additional shift on every third, or on two Sundays out of three, tends again to be adopted in national shell factories, while a ten or eleven hour shift is common in general engineering, ship-building and aircraft factories. Many employers maintain that an eight-hour shift yields the best results for women employed on heavy machines. One firm discovers even an advantage in output on a 6½-hour shift, and the women an increase in earnings. Other employers object against this that time is lost at the turnover on an 8-hour shift, while the arrangement is uneconomical for the management as well as awkward for the workers with regard to meal-times and travelling to and from work. More than one firm has obtained the sanction of the Ministry of Munitions to transfer a shell factory from an 8-hour to a 12-hour shift, notwithstanding the contrary recommendation of the Health of Munition Workers' Committee, and the protest of the National Federation of Women Workers. The ordinary hours of work on an 8-hour shift are from 6 a.m. to 2 p.m., 2 p.m. to 10 p.m., and 10 p.m. to 6 a.m., and on a 12-hour shift from 8 a.m. to 8 p.m., or 8 p.m. to 8 a.m., one or two shifts being missed at the turnover on Sunday night; and day-shift and night-shift are alternate every fortnight. The

workers complain of the difficulty in adapting themselves to the constant transfer from day to night duty. On the other hand, few women coming from poor and crowded homes, mothers of young children especially, obtain proper rest in the daytime, and find a fortnight on night duty as much as, or more than, they are able to stand. But night-work is always exhausting; and the absence of the week-end rest adds to the strain. More than one employer, dropping the Sunday shift in order to assure the worker a period of at least 24 hours continuous rest, claims an actual advantage in output. Nor is excessive overtime or Sunday shift agreed by the workers except on account of the larger earnings, the increased comfort of the home being weighed in the balance against the additional strain of the factory. But the employer, himself, learns the economy of short hours of work; a week of not longer than 60 hours, or 56 hours on "moderately heavy work," being urged by the Health of Munition Workers' Committee in the interests of output as well as health. A working-week of 80 hours, as many as thirty Sundays worked on end without a Sabbath rest, a shift-and-a-half amounting to 18 hours worked in a stretch at the turnover on Saturday night, a break of not more than eight hours between one shift and another, the extravagance of the early months of the war is less common than once.

But the hardship endured by the munition worker is not confined to long hours of work. The machines are running at full speed and serious accidents are not uncommon, the number increasing as the worker grows nervous or careless from exhaustion at the end of a long day or night. Other women complain of injury from the starting of a heavy machine, or lifting of a heavy shell, and from the long hours of standing. Seats are conspicuous by their absence in the machine shops. Nor are the women always provided with mechanical or other assistance, although lifting a weight of 60 lbs.* Rupture or other definite injury to health is not uncommon, a woman having seldom the muscular strength to lift with the arms as a man. However, the women employed on the heavier machines, or in labouring, belong on the whole to a robust type of worker, presenting a marked superiority in physical development, and more than one employer comments on the extraordinary powers of endurance revealed by the woman munition worker.

The strain of work is less in the "filling" and "inspection" sheds, and the workers are to a large extent seated. But other hardship is discovered in the "danger" sheds. The workers face with a high patriotism the risk of explosion, and courage is not

* Between 40 and 50 lbs. is generally held to be the maximum weight safely lifted by a woman of ordinary physique, although exceptional women lift weights twice as great without apparent harm to themselves.

born of ignorance. The injury to health from the handling of poisonous substances, skin affections, lassitude, headache and sickness, the worker endures with equal fortitude. Women are sometimes said to be more susceptible than men to the effects of poison, although the individual varies, and one worker is obliged to give up altogether, while another remains comparatively immune. The deadly poison, known as T.N.T.* and used in high explosives, induces eczema, anæmia, jaundice, with sometimes fatal results. Nor is the full extent of the injury known. The worker falls out and disappears. The discolouration of the skin induced by " tetryl," causes as much objection among the women, although the effects are not as serious to health. But the worse risks are avoided as precautions are better understood and observed. The employer is not unconcerned for the health of the worker. The women, themselves, incline more often to be careless. Familiarity breeds contempt, and troublesome precautions are disregarded in the anxiety of the worker to maintain output. The preventive measures against the effects of poison include " good food " ; but " good food " depends on high wages. The additional ½d. an hour, conceded by the Minister of Munitions in the " danger " sheds, the women earn fully. But the strain of work is severe everywhere. The absence of 14 or 16 hours from the home on a 12-hour shift ; the crowded journey in the train or tram to and from the factory, or failure to secure a place at all and a walk of several miles in consequence ; the high cost of living in crowded munition areas, and bed paid for at 10s. or 12s. a week and shared with another woman sleeping " Box and Cox " ; the fares amounting to 1s. a day ; the early start with or without a hot breakfast or breakfast at all ; the distance of the canteen from the factory ; the bad service or poor quality of the food supplied and inability of the tired worker to face the unappetising meal ; the lack of canteen facility at all, and cold sandwich prepared on the previous day and eaten in the shed or out-of-doors ; the inadequate sanitary, cloakroom, " rest-room " accommodation ; the defective heating or lighting arrangements ; the exposure to weather in half-finished or open sheds ; the draughts and wet floors in the aircraft sheds and ship-yards, or the strain on the eyes in " oxyacetylene welding " ; the delay of an hour or more on pay-day at the end of a 12-hour shift ; the nervous tension waiting in the dark during a Zeppelin raid ; the plight of the women thrown out of work by a dispute none of their own and deserted by the Minister of Munitions in a district many hundred miles from home ; the absence of holidays ; the hardship is not less because sometimes inevitable, and aggravated again by the Munitions of War Act restricting the worker in moving from one factory to another

* According to the *Labour Gazette*, July 1917, 49 deaths from all causes of diseases of occupation were reported under the Factory and Workshops Acts for the six months ended June, 1917 ; and of these deaths 32 were due to *toxic jaundice*.

in order to improve her position.* The threat to drag a woman before the Munitions Tribunal forms, on the other hand, a new weapon in the hands of the employer, and the worker is not excused for bad time-keeping, or even falling asleep, because the hours of work are 70 to 80 a week. The strain of the munition factory presses with exceptional severity on mothers of young children, or growing girls. Children under 16 years of age are discovered even on night-shift, and fall to sleep on the machines. A little girl of 14 years, employed on a 12-hour alternate day and night-shift, explains how she travels a journey of two hours each way to and from the factory, and has exactly eight hours at home for sleep and recreation. Meanwhile, the low rate of wages paid to young girls, many of whom compare well with women in output on light repetition jobs, encourages the exploitation of the child munition worker.

But the efforts of the Health of Munition Workers' Committee are not without fruit, and abuse is less common than before. Hours of work are reduced within bounds, Sunday work is restricted or abolished† and young people are withdrawn from night-work. In one factory after another the essential precautions of health are enforced, including the appointment of women medical officers and provision of hot breakfasts and milk in the " danger " sheds ; while new factories are built with every up-to-date canteen, rest-room, sanitary, heating and lighting, or other convenience.‡ Creches are even arranged for nursing mothers, although the wisdom of the measure is doubtful. The Government or private employer provides at other times suitable board and lodging at a reasonable cost to the worker in congested areas.§ Or improvement is made

* In the Report of the Commission on Industrial Unrest, appears the following significant remark: " But for the fact that Barrow lies in a very isolated position and that it is considered inadvisable to inform the public through the medium of the Press of many of the evil conditions of industrial life, we cannot believe that the facts we propose to set down could so long have remained actual conditions of domestic life in England in the twentieth century."

† After May, 1917, Sunday work is practically abolished.

‡ Under a Police Act (August, 1916), the Home Secretary can require, in any factory or workshop where he deems it desirable, that the occupier shall make arrangements for the preparing or heating, and taking of meals ; ambulance and seats in workrooms ; washing arrangements and cloak rooms. The Order may also provide for the workers concerned being associated in the management of the arrangements specified above, in any case where a portion of the cost is contributed by workers, but no payment shall be required from them for any of these comforts, except for the provision of additional or special benefits such as could not reasonably be provided by the employer alone, and then only with the consent of a two-thirds majority of workers.

§ The charge for board and lodging varies from centre to centre. Thus, at Woolwich Arsenal, the charge is 4s. a week for a share of a double-bedded room ; 4s. 6d. for a single room ; 7s. 6d. for a bed-sitting room without board ; or 16s. 6d. a week in one hostel and £1 a week in another with board, including two solid meals and full board on Sundays. At Gretna Green, the charge is 13s. 6d. a week, raised from 12s. originally, with full board. While, with a great armament firm, the charge is 15s. a week, with board, not including suppers and washing.

in transit, the fare being paid to outlying districts. The Young Women's Christian Association, and other voluntary agencies have also done valuable work in providing canteens and rest-rooms for women munition workers. The employer, himself, learns to appreciate the connection between comfort and output; and discovers even the economy of high wages. More than before, the women earning an average of 30s. a week or upwards and able to afford comfortable living with some domestic assistance, the employer remarks on the excellent time-keeping and astonishing absence of sickness.* But the new importance attached by the employer to the welfare of the worker appears, perhaps, in clearest evidence in the movement of "welfare supervision" developed with extraordinary rapidity since the war. Nor is the importance of "welfare" unappreciated by the worker. Nevertheless, the trade unions view the movement in its present form with not a little dislike and suspicion. The aims† of welfare supervision, according to an official memorandum, include the "reduction to the absolute minimum of danger to life and health from unprotected machinery and from the handling of explosive or poisonous substances"; the supervision of canteens, cloak-rooms, lavatory and sanitary accommodation, &c., so as to ensure such conditions "as men and women coming from clean and respectable homes may reasonably demand"; the regulation of wages, so as "to provide what is necessary for physical efficiency and to leave a margin for reasonable recreation"; the regulation of hours of work, so as "not unduly to tax the worker's strength" and "give reasonable opportunities for rest and recreation"; the supervision of workshop morals and manners, so as to achieve "a standard of behaviour such as would not offend an employee coming from a respectable home," and ensure "the payment of due consideration to the workers as individuals"; the supervision of recreation, including "the provision, where necessary, of suitable recreation outside of working hours, especially for those working under strain and on monotonous work"; the supervision of hostels or lodgings, so as to ensure "general conditions such as make for comfort and happiness," and protect young people living away from home against demoralising influences, or women and young girls from "lodging with disreputable people."‡ The

* At Woolwich Arsenal, where the earnings are comparatively high, the women are said to have gone up in weight, although working a 65-hour week, including day and night shift.

† "The Aims of the Welfare Section." Memorandum issued by the Ministry of Munitions to welfare supervisors.

‡ According to Miss Proud, the principal authority on Welfare work, the duties include the first interviewing of applicants for employment, including diathesis and home enquiries, advice to the management as to the suitable employment of individuals, and rates of wages, the explanation of methods of payment and pay-sheets to ignorant workers, the supervision of health including medical and convalescent treatment, the supervision of canteens, hostels, sanitary arrangements, &c., the promoting of clubs, educational classes, friendly and insurance schemes. The scope covers, in fact, the whole life of the worker, working or playing, living or dying.

" welfare supervisor " offers, perhaps, the only convenient means in order to meet the emergency of the war and extraordinary need of the host of inexperienced women and young people drawn into munition factories from every variety of home or occupation, and sometimes from a long distance, in order to work under exceptional circumstances. But the vesting of duties so far-reaching and various in a single officer, responsible only to the employer, the workers view with unconcealed dismay. Nor is the appointment of a welfare supervisor, without medical or other expert qualification, a guarantee for the health and safety of the factory, and her efforts, although well-intentioned, may or may not be well-directed. According to the workers, one woman factory inspector or medical officer is worth a whole army of " welfare supervisors." The workers are further not prepared to permit a voice to an irresponsible third party, or a party responsible only to the employer, in matters of wages and hours of work, and have refused more than once to accept an intermediary other than their own trade union between themselves and their employer. The worker is as unwilling to accept advice from an agent of her employer as to how to spend her leisure in order to improve her efficiency, or other interference in her domestic or personal concerns. A huge production is not the sum of human desire, and " welfare " takes two complexions in the minds of the employer and worker. The trade unions scent a wolf in sheep's clothing, and discover in " welfare " only another name for " scientific management." The provision of canteens or hostels by the employer, the workers view with a like dislike and suspicion, as extending unduly the control by the employer over the worker. The workers view, on the other hand, with satisfaction the appointment of forewomen, or women supervisors, although a woman is said to be a hard task-master. The presence of a responsible woman in the shop is essential for the protection of young workers, in view of the reluctance of a young girl to complain of indisposition or personal annoyance to a foreman, himself sometimes the cause of the latter, leading her to endure unnecessary distress.

Middle-class Women.

The proportion of middle-class women employed in munition factories is comparatively small, although the number is not insignificant in skilled occupations, " oxyacetylene welders," " fitters," " tool-setters," " draughtswomen," forewomen and supervisors. One firm, engaged in aeroplane engine-making, discusses even a three years' apprenticeship for women of secondary education entering industry at 18 years of age. But the middle-class munition worker is by no means confined to skilled occupa-

tions ; and a firm, employing a whole staff of 500 educated women on 6.2 and 8.2 shells, remarks on the extraordinary success of the experiment. However, the women enjoy comparatively high wages and short hours of work, and good conditions correspond elsewhere with a high output. Middle-class women are employed at other times as " relief " or " week-end " workers, releasing in this way the regular workers of the trade for the much needed Sunday rest. The employer pays the ordinary rates, but no overtime, on the ground that to pay the extra allowance to " week-end " workers, employed only for the Saturday or Sunday shift, would cause an injustice to other workers employed throughout the week. The argument is plausible, although the employer makes as usual the best of the bargain. But the educated woman holds her own on the whole in output. She is quick to learn and adapt herself to new conditions. Her experience in authority over others gives her also a special claim to promotion. She has, too, some advantage in physical health and muscular development, although she suffers more than others from the noise and dirt of the machines. But the superior conditions of comfort under which she often lives must also be taken into account. In a shell factory, where the earnings averaged about £1 a week, a middle-class worker supplementing her own earnings by private means estimates the minimum " efficiency " wage at 30s. at least, in view of the high cost of living, and need for good food and rest in order to compensate the exceptional drain of energy. But " other means of subsistence " are by no means the rule, and a number of middle-class women employed in munition factories support themselves entirely from their own earnings. The " amateur " munition worker, claiming special terms for herself and not prepared to take her place side by side with her sisters, the regular worker of the trade views with unconcealed dislike and suspicion. Nevertheless, the advent of the middle-class woman in the factory, breaking down the present artificial barrier which separates two social classes into brain and manual workers according to income rather than aptitude or inclination, and introducing her own superior standard of health and comfort, bears on the whole a good significance for working-women. More than once, defective sanitary arrangements or similar abuses have been remedied by the firm owing to the spontaneous indignation and outspoken remonstrance of a middle-class woman. The gallant stand made by the infant Society of Women Oxyacetylene Welders suggests also a body of valuable recruits to trade unionism. The difference is less, perhaps, in tradition and outlook between one social stratum and another among women than men. The middle-class woman is *in* but not *of* the governing class. However, the educated woman of the robust and enterprising character entering munition factories during the war, shows little or no inclination to remain in industry, except as forewoman or supervisor, or as a skilled worker in trades offering opportunity to talent or intelligence, and comparatively high wages.

Summary.

Of the 400,000 or more women entering the engineering and allied metal trades between the outbreak of war and January, 1917, about 90 per cent. are employed on work "not recognised as women's work before the war." The majority have taken the place of *semi-skilled mechanics* or *unskilled assistants*, the operations being automatic or semi-automatic in character, and belonging to a category performed by female labour in *women's trades* before the war. Wide readjustments have been made in the process, but are incidental rather to the extraordinary expansion of the trade than to the admission of female labour. The character of the job remains unchanged. An important exception appears only in the special exemption of women from rough or heavy duties performed by men, or the special assistance provided to women and not to men by means of mechanical appliances or male labourers in order to reduce the physical strain of the work. The minority of women have taken the places of *fully-qualified* or *skilled tradesmen*, the promotion of the women to the men's machines in general engineering and tool-making shops showing the great departure from the practice of the trade since the war. But a five or seven years' apprenticeship is not crammed in as many weeks or months, and substantial readjustments have been made in the process. The character of the job is sometimes transformed altogether, by means of mechanical or "fool-proof" appliances, or new sub-divisions of labour, the job belonging no longer to a skilled category. On the other hand, a number of women perform, although not the *whole*, a *skilled part* of a *skilled job*. The women are generally confined to comparatively light and straight-forward operations, and require additional supervision or assistance in setting the tools until they gain in experience; throwing incidentally a heavier burden on the men. Nevertheless, the job remains in a category reserved before the war to fully-qualified or skilled tradesmen; men and women being discovered on identical work in oxyacetylene welding and other "specialised" trades. Nor are the women behindhand in output, and equal or exceed the standard of the men on light operations, although falling below on operations beyond their muscular strength. A skilled job is not learned at once or without intelligence; but female labour is not lacking in mechanical aptitude, and the need for supervision is not exceptional as the worker gains in experience. Some employers declare even an advantage in female labour, while mechanical methods of production accelerate output. Against this, the employer claims certain additional charges on account of legal or other restrictions on female labour. A number of young girls are also employed on work "customarily done by men," and compare well with adults in output on light "repetition" operations.

But, although the women are employed on work " customarily done by men " in every branch of engineering concerned in munitions of war, the rate " customarily paid for the job " is not yet secured. The statutory orders, 1917, including the April advance, give a standard rate of 24s. a week of 48 hours, together with the men's piece-rate, for women over 18 years of age, and a lower scale for young girls; while the rate " customarily paid for the job " is granted under certain conditions to women employed on the *whole* or *part* of the job of a *fully-skilled* tradesman. But, in practice, the men's piece-rate tends to disappear with each readjustment of process; while the men's time-rate, granted only in skilled trades, tends to be confined to women employed in the place of *fully-qualified* or *apprenticed* tradesmen, and other women employed in skilled trades secure only an intermediate rate or the bare standard. Nor is the April advance of 5s. a week, granted to the men, secured by the women. Piece-workers earn sometimes comparatively high wages, and even the rate " customarily paid for the job " with a scrupulous employer. The women's unions secure again by means of arbitration a time-rate higher than the statutory standard for some of their members, including semi-skilled and unskilled workers. But, for the large body of women employed in men's trades, the earnings tend to remain at the statutory level, with a few shillings extra on piece-work, being less by about one-third than the rates paid to men for similar work. However, one exception appears to the rule, and women taking the places of boy apprentices secure a higher and not a lower rate of wages.

Another 200,000 women are employed on work " not recognised as men's work before the war," to which class belong the more experienced workers of the trade. The statutory orders, 1917, including the April advance, give a standard of 5½d. an hour for time-workers, and a minimum of 4¾d. for piece-workers, piece-rates being estimated to work out at time-and-a-third, with an additional ½d. in the " danger " sheds, and a lower scale for young girls. Piece-workers earn sometimes comparatively high wages, comparing not unfavourably with women employed on work " customarily done by men." The women's unions secure again by means of arbitration a time-rate higher than the statutory standard for some of their members. But for the large body of women employed in women's trades, the earnings tend to remain at the statutory level and are less by 20 per cent. at least than the equivalent of the 17s. a week laid down by the Women's Co-operative Guild as the minimum subsistance wage for an adult woman before the war, in view of the rise in the cost of living. Nor are the statutory orders always applied, although the terms are secured by means of arbitration; and, in unorganised shops and districts, a number of women remain, even in 1917, at the pre-war level of wages, with only a war bonus of 1s. or 2s. a week, although coming under Section 7 of the Munitions of War Act and restricted in moving

from one employer to another. A subsistance wage is earned only by means of excessive hours of work.

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In a little book with beautiful pictures of women munition workers, issued by the Ministry of Munitions, 1916, Mr. Lloyd George writes: "It illustrates some of the operations which women with the loyal co-operation and splendid assistance of the workmen concerned are performing in engineering shops." But the sequel, showing how the men's rate is observed, with the "loyal co-operation and splendid assistance of the employer," remains yet to be published. Mr. Lloyd George is a clever psychologist. He asked much from the worker, "for the little that he hath shall be taken," and little from the employer, "for he hath great possessions." But he reckoned without the trade unions, whose members have also possessions in the trade union rules and regulations won by half a century of organisation, and have fought for their own as men, neither saints nor fools, and not without success. Nevertheless, the employer has the best of the bargain. The trade unions have abandoned their practice for the period of the war, and admit female labour to every branch of engineering concerned in munitions of war, while the employer retains his own, and continues to exploit female labour at blackleg and sweated rates of wages.

RECONSTRUCTION.

Outlook and Recommendations.

"Will the women remain in the engineering trades?" The answer is only a guess. Many women no doubt will retire from industry at the end of the war. Soldiers' wives will go back to their homes, and young girls leave the trade to marry. Other women will take up previous or more congenial occupation. The return of trade into normal channels, the re-transformation of a great industry from the simple uses of war to the complex uses of peace, by contracting the area of sectional and repetition work, will offer at the same time less opportunity for the employment of semi-skilled or female labour. The general engineering shop will employ once more the all-round craftsman; while the small employer will not consent to the expense or inconvenience of separate sanitary or other requirements of female labour for the sake of a few odd women. The vast construction and repairing works, postponed until after the war, will also be generally unsuited to inexperienced female labour. Moreover, women are "meantime" workers, and as unlikely in the near future as in the past to qualify by a long apprenticeship as all-round skilled tradesmen. The schemes of apprenticeship for female labour, sometimes discussed by employers, reduce the period to three years and refer only to women of secondary education.

But, although a large number of women leave the engineering trades at the end of the war, many thousand will also be left. The proportion of volunteers, or women without necessity or desire to earn a living, remains small in munition factories. Soldiers' widows, wives of disabled men, young girls entering industry for the first time during the war and anxious to remain, will know no occupations to which to go back. Other women, returning to women's trades, will discover no employment. Dressmaking, millinery, the luxury trades, possibly domestic service, these trades are likely to continue slack indefinitely; or the women will find their places filled by young girls, who will not be discharged in favour of adults claiming a higher rate of wages. All women, too, will not be inclined to exchange a men's for a women's trade. A blackleg rate in the former yet offers a big rise from a sweated rate in the latter. A woman, too, has her professional price; and a female "fitter," "welder," "tool-setter," will object to descend to a "purely automatic operation." Moreover, the entry of women in the engineering trades, although precipitated

by the war, follows a normal line of evolution ; and this movement will have taken an impetus from which a return is at least improbable. The lessons, taught in war time, will be remembered in peace time. The employer has learned, as never before, the art of " the dilution of skilled labour," the economy of " specialisation," large-scale and continuous production, the use of automatic machinery, the value of female labour. He will have to hand, besides, an up-to-date plant of women's machines, and a staff of women trained to use them. Employers are already discussing new openings for female labour, sewing-machine, typewriter, motor-car, aeroplane-making. Women's trades, women's processes, will displace the men's, although without direct substitution of male by female labour. The blackleg trade or process is a well-known phenomenon. But the employer proclaims openly his intention to retain female labour after the war, while not a few women declare their desire or necessity to remain. This is then the position which will have to be faced by the men's trade unions.

The Munitions of War Act, following the Treasury Agreement, lays down " that any departure during the war from the practice ruling in workshops, shipyards and other industries prior to the war, shall be only for the period of the war." A similar provision is included in the Shells and Fuses Agreement. And these pledges, given by the Government and the Employers' Federation involve clearly the expulsion of female labour in whatever trades, occupations, districts or workshops, female labour was not recognised by the trade unions before the war, such terms being enforcible by the Government for one year after the war under the Munitions of War Act. The women express at the same time, their readiness to give up their places to the men returning to claim them.

But how far the trade unions will be wise to demand the enforcement of these pledges to the letter of the law, opens another question. For, neither the " good faith " of the Government and the employers, nor yet the loyalty of the women, will wipe out the experience of the war. The clock of time is not set back. New factories, new machines, new trades, new processes, will stand side by side with the old, to which the women will feel an equal claim with the men, and the old order and not the new will be changed. Moreover, the " good faith " of the Government and employer, although compelling the immediate expulsion of female labour, will not prevent an invitation to the women to return at the end of the year ; and the women expelled from the trade will owe no allegiance to the trade unions. The battle, postponed to-day, will be fought to-morrow, and under less favourable circumstances than now. An old story will repeat itself, a story well-known in the Birmingham metal trades ; and the women, outlaws to-day, will return as blacklegs to-morrow.

However, this is not to say that the trade unions should throw away their pledges. On the contrary, the trade unions must claim that these pledges shall be redeemed to the letter of the

law, whatever the cost or anomaly; or else a *quid pro quo* not less acceptable to the workers shall be given in exchange, the terms of which must secure that the admission of female labour to the trade, opening the door to a new body of less well-paid, less qualified, less organised workers, shall not prejudice the standard of living of the present members of the trade unions, nor their advance in the future towards the ideal of industry conceived by themselves.

Nor is the end of the war a moment altogether unfavourable to the workers in order to settle accounts, past and present, with the Government and employers. The trade unions have placed in trust with the Government the sureties of the workers for the period of the war, making over the trade union rules and regulations, which form the whole possessions of labour; and this debt can be no more repudiated by the Government without public dishonour than the national loan. The clock of time is not set back, and the trade unions will be wise not to ask for the moon. But the Government can give, and enforce on the employers, full compensation for the failure to redeem the pledges. The employer, too, cannot claim a discount on the ground that the position of the women will be incidentally improved. The bargain was made with the organised men and not with the unorganised women. The employer, who prefers the *status quo ante*, stands under no obligation to employ female labour. But the employer, himself, as he turns from munitions of war to private trade, will be anxious to come to terms with the workers, and avoid an immediate struggle with the trade unions, although he is not unprepared. Part of the battle, besides, the workers have won against the employers already. "Equal pay for equal work," although not a fact, forms at least a matter of practical politics. Many employers, introducing women for the first time during the war, have never known the indulgence of a rate of 2½d. an hour. Some employers have learned even the necessity to pay the rate "customarily paid for the job." The trade unions will not either have forfeited the big debt owed by the women to the men, who have fought their battles for them. Public opinion, too, will side with the men who are out to open, and not close the door to the women "who helped to win the war"; and public opinion counts for something. And a good conscience counts for more. Sex prejudice is as unbecoming as class prejudice to a body of democrats. The end of the war is then a moment not altogether unfavourable to the workers in order to settle accounts, past and present, with the Government and the employers.

But, before discussing terms with the Government or the employers, the trade unions must set first of all their own house in order, and remove the pre-war restrictions, written or unwritten, on female labour. The concession must also be frank, and not show certain occupations reserved to one sex alone, or defeats its own object. For women will not and cannot accept a verdict

of the men, excluding them from a trade for which they are and know themselves to be fitted, for no other reason than sex. The engineer believes, and with perfect sincerity, that his own trade is peculiarly unsuited to women. But no man, from the Member of Parliament to the boot-black or crossing-sweep, does not believe, with equal sincerity, exactly the same. And a woman, after all, has to earn a living. Moreover, some women prefer to earn a living, and even desire economic independence. A strange taste for a woman, perhaps, in the eyes of her kind men-folk. A woman asks for this or that, but "women do not know what they want." Let the working-man remember that his own taste for " control of industry," and his own distaste for " scientific management," appear as strange in the eyes of his benevolent employer. This is not to say, however, that no occupation is unsuited to women. A woman knows the limits of her own constitution, indeed, a thousand times better than ever guessed by a man. This is not to say, either, that a woman, as guardian of the race, has not a special duty to protect herself from injury to health. But the duty is owed, not to the trade unions or any one section of society, but to the whole community, and must be enforced by no less an authority than the State itself, acting through a responsible government department on expert medical advice. The trade unions, who tolerate a growing girl on a heavy roughing or press machine, and prohibit an able-bodied woman on a light centre lathe, or setting the tools, show only a masculine ignorance of feminine physique. And, apart from the question of damage to the race—a medical matter and a national concern—a working woman claims, as a working man, herself to choose her own occupation. Women, even less than men, give themselves entirely to industry, and prefer, perhaps, the " purely automatic operations," to which female labour is relegated under the Crayford Agreement. The intimate circle of home and family, the human drama of personal relationships and domestic happenings, play by natural or social law a deeper part in feminine than in masculine psychology. A " purely automatic operation " has its own compensations. A semi-skilled trade, exacting from the worker general intelligence rather than expert training, offers again particular advantages to " meantime " labour. But, whatever is a woman's predilection in industry, her occupation is her own affair and least of all the affair of her male competitor.

From the right of women to the trade, follows in sequence the right of women to the trade union. To organise is to recognise, to recognise is to organise; the two propositions hang together in trade union philosophy.* The present refusal of the Amalgamated Society of Engineers and other engineering unions to admit women

*The Trade Union Congress, 1916, passed a resolution demanding compulsory trade unionism for men and women. The principle of compulsion is objectionable on vital grounds, but the measure would certainly facilitate the problem of organisation.

to membership, and the preference of the former for an alliance with the National Federation of Women Workers, reflects only the natural objection of the members to admit women to membership during the war, and expel afterwards their own members from the trade. But this objection disappears with the removal of the pre-war restrictions on female labour for once and all; and the Amalgamated Society of Engineers, the women's champion during the war, stands marked as the union having a prior claim and obligation to organise women. In the first place, the Society forms the nearest approach to an "industrial" union, covering at least every class of skilled tradesman or semi-skilled mechanic,* and is therefore able to cater for the great body of women in the engineering trades without causing a new source of overlap between one union and another. In the second place, every argument in favour of "union by industry" holds with additional force in the case of women, in the measure of their greater weakness in organisation. A women's union necessarily lacks stability. The reasons are obvious. Youth, inexperience, mortality by marriage and the inevitable fluctuation of membership, the "open" type of semi-skilled or unskilled trade to which women belong, the low wages of female labour permitting a bare subscription of 2d. or 3d. a week and the consequent absence of benefits, a woman's attachment and duties in the home, her lack of tradition in public service, her political disabilities; one factor reacts on another. The women need the backbone of the men's strength in organisation. On the other hand, the skilled tradesman, however strong his position, cannot afford to ignore his semi-skilled or unskilled competitor, least of all the female worker, who presses ever on his heels, cutting him out by cutting the rate, as the progressive simplification of process brings one job after another within reach of a less and less qualified class of worker. The solidarity of labour is the last fact learned by trade unionists. Nor is the policy of the "mixed" union against the tradition of the National Federation of Women Workers, which has played the principal part since the war in organising women munition workers. More than once in history the Federation has formed a successful branch, and held this in trust for a men's trade union, until the members decided to open the door to women. Indeed, failing a decision of the Amalgamated Society of Engineers to admit women to membership, a strengthening of the present alliance between the Society and the National Federation of Women Workers appears to offer the best alternative.

The position of women in trade unions cannot be discussed in detail. The "mixed" branch, the "mixed" committee, show the same advantages as the "mixed" union. Equality of member-

*The unskilled labourer, or assistant, admitted by the Society, 1914, was excluded again, January, 1917, the members prefering for the time being a mutual arrangement with the general labour unions, which included already large numbers of unskilled labourers in the engineering trades.

ship follows, too, as a matter of course. But the trade unions, who admit women as members at all, treat them in this matter generously, in fact, more generously, than they treat the men belonging in the same way to a less qualified class of labour. A reason is suggested in the fact that the women, with more becoming modesty, make less use of their opportunities. But this failure of the women to come forward and take an active part in management touches exactly the weak spot of the "mixed" union. The great Amalgamated Cotton Weavers' Association shows a classic example. Not one woman sits on the central executive committee, and few women sit on the local committees, although the women form over two-thirds of the membership and suffer under no disability. The reason lies partly in the "meantime" character of female labour and comparative youth of the female members, but also in the natural reluctance felt by women to force a position in a men's trade union to which they may or may not be welcome. However, the blame must not be laid to the men, because the women make no use of their opportunities. Nevertheless, without adequate representation of the separate women's point of view, a harmony is not reached between conflicting sex interests, and the great value of the "mixed" union is lost. For instance, a crude or disingenuous interpretation of "equal pay for equal work," designed to keep women out and not let them in, will achieve nothing at all except to drive women, as before, into outlaws and blacklegs,* Working-women will not and cannot respect a law made by working-men the object of which is their own extermination. Two measures are therefore suggested as possible means in order to ensure a feminine voice in the management until the women establish their position in a men's trade union. First, the reserving of one place, or preferably two places, to women on committees of management, following the precedent of the National Union of Paper Workers. The measure is not altogether free from objection, being open to criticism as sex privilege, and is suggested for this reason as only a temporary expedient with a definite time-limit until the women establish their position. Secondly, the forming of a "women's council," or women's "advisory" committee, following the precedent of the National Amalgamated Union of Shop Assistants. A "women's council" has no executive powers, but offers a none the less valuable means of education and propaganda, forming a centre of feminine thought and activity and a training ground for women officers and committee-men. The "women's council" plays, in fact, the same part within the trade union as the Women's Trade Union

*The London Society of Compositors has a rule since 1886 admitting women to the trade and trade union on equal terms with men, with the effect to exclude women from both, or rather of driving female labour, and, incidentally the trade, into unorganised districts. The "book" trade has practically left London for the provinces. In the same way, trade has passed from Glasgow to Edinburgh, from Manchester to Wolverton.

League plays in the trade union world. The reserving of places on committees of management to semi-skilled or unskilled members, forming a special class in a skilled craft union, on account of separate *trade* as apart from separate *sex* interests, opens another question outside the present reference.* Unfortunately, the present policy of the Amalgamated Society of Engineers excludes deliberately semi-skilled men from office, with the result of the unfortunate omission in the Shell and Fuses Agreement.

The trade unions, having set their own house in order with regard to female labour, stand then in a sound position to make terms with the Government or the employers. The following programme is suggested as a rough basis for an agreement.

> I. "*The securing of the rates customarily paid for the job on work not recognised as women's work before the war.*"

This provision implies, first of all, the maintaining of the standard rates of wages for the male members of the trade unions; the discussion being confined to female labour, in order only to limit the subject within the reference.

The Amalgamated Society of Engineers and the National Federation of Women Workers hold already the elements of a women's charter in Circular L.2 and the amending orders, fixing rates of wages for women employed on work not recognised as women's work before the war. But the terms show grave defects. In the first place, the time-rate is not secured except under certain conditions to a minority of women employed in the place of *fully-skilled tradesmen;* although a time-rate is common in the trade and forms the basis of the piece-rate, upon which the workers rely in order to maintain the standard on piece-work as well as on time-work. Nor can the workers afford to wait. The reluctance of the employer to concede the time-rate, although he grants the piece-rate, bears a clear significance. At the end of the war, as trade returns to normal channels, the piece-rate will be changed, while the time-rate will remain; and the women, established on the men's machines at a women's time-rate, will certainly prejudice the return to the pre-war position. Possession is nine-tenths of the law. In the second place, L.2 makes no provision for young girls under 18 years of age; while a later statutory order permits, or rather lays down, that young girls employed on work customarily done by men shall be paid a scale of rates reduced according to age by ten to thirty per cent. from the standard of L.2, on *piece-work* as well as on *time-work*, offering incidentally a direct encouragement to the employer to exploit young people in unsuitable occupations.

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*The distinction is clearly drawn by the Blackburn Weavers, who reserve two places on the Executive Committee for a warper and a winder, these workers being incidentally women; but no place for a female weaver whose trade interests are represented by the men.

The two following proposals are put forward :—

(1) That women employed on work customarily done by men shall be paid the time-rates and the piece-rates customarily paid for the job, unless the employer is able to show (*a*), (*b*), or (*c*), to the satisfaction of the trade unions concerned or, failing agreement between all parties, the local joint committees representing the employers and the trade unions, or other body forming the ordinary machinery for the settling of disputes.

(*a*) That the woman is in need of training.

In this case, a rate shall be paid starting at the minimum rate for an adult woman, and rising by steps until the full rate is reached at the end of a fixed period of probation. The payment of a probationary rate shall in each case be notified by the employer to the trade union or trade unions concerned, and shall not otherwise be allowed. The period of probation and conditions under which a probationary rate is allowed shall be fixed by agreement between the employers' associations and trade unions concerned.*

(*b*) That a readjustment has been made in the process of such a character as would lead customarily to the employment of a different class of labour—*e.g.*, to a semi-skilled instead of a skilled worker, a boy instead of a man.

In this case, a rate shall be paid not lower than the rate which would have been paid if male labour had been employed instead of female labour ; or the minimum wage for an adult woman, whichever is the higher.†

(*c*) That, in order to meet the separate needs of female labour, a change or changes have been made in working conditions increasing the cost of production to the employer.

In this case, a rate shall be paid not lower than the rate customarily paid for the job by more than the cost entailed on the employer by the change or changes in question, or the minimum rate of an adult woman, whichever is the higher. No deduction from the rate shall be allowed except in respect of one or more of the matters set out in the following schedule.

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*The clause presupposes a probationary rate for adult men. See page 12.

†The clause presupposes again trade union rates of wages for semi-skilled and unskilled men, such rates being fixed before the admission of a new class of semi-skilled and unskilled labour.

THE SCHEDULE.

(1) Any apparatus, or accommodation, required by law for the protection of female and not male labour.

(2) Any mechanical apparatus, or assistance by male labour, provided to women and not men, in order to reduce the strain on the worker.

(3) Any restriction of female labour to light tools, loads or weights, diminishing output, and extended to women and not to men, in order to reduce the physical strain on the worker.

The amount of the deduction allowed from the rate on account of one or more of the matters in the schedule shall be fixed by agreement between the employers' associations and trade unions concerned.‡

The principles of the proposals are these, which apply to all and not only to the engineering trades. In the first place, the employer, introducing women on work "customarily done by men," skilled, semi-skilled, or unskilled, must pay the rates, time-rates and piece-rates, customarily paid for the job, or show a just cause to the contrary. One rate for one job is the rule of the trade. The employer is the party who claims a departure, and on him lies the onus of proving his case. Moreover, he holds the whole of the data, which are seldom available to the workers. In the second place, the case proved by the employer must be substantial—a clear defect in the worker, a radical change in the job, a definite disadvantage to himself.

Thus, under the first head, a need for training shows a clear defect in the worker, but is also remedied by time. A period of probation must be fixed for each job, one month, one week, one day. A job requiring longer than a three months' probation is probably unsuited for the admission of inexperienced adult labour even in war-time; while few jobs of the automatic or semi-automatic and "repetition" character to which women are mainly confined take longer to learn than three weeks. The present policy of the Amalgamated Society of Engineers is against a probationary rate for adult workers, in view of the wide door opened to outsiders. But the door is open past closing already, and a probationary rate for adult workers was not uncommon in less organised shops and districts before the war, although unrecognised by the trade unions. The proposal is then only to regulate and check the abuse of a device likely to extend with the progressive simplification of process and education of the rank and file of labour, and offers the incidental advantage of bringing the probationer into touch with the trade union. Meanwhile, the

‡The estimate must not, for instance, include "learners" during the period of probation. Capital expenditure, which is or ought to be charged against the Government, ought not either to be charged against the women during the period of the war.

admission of female labour brings a new necessity for the recognition of the adult probationer, many women entering industry for the first time as adults on account of home ties, or returning after long years of marriage. Moreover, taking a broader view, a measure enabling the worker to pass more readily from one trade to another, a slack to a busy trade, offers on the whole an advantage to labour. The engineer sees, to-day, his own trade invaded; but, to-morrow, he may wish to invade. The advantage lies, perhaps, with the semi-skilled mechanic or unskilled assistant, rather than with the fully-qualified tradesman. But the semi-skilled and unskilled worker form already a majority of the trade, and point to the type of the future. Monopoly is an ugly weapon of the employer.

Then, under the second head, a readjustment of process shows a case of a change in the job; but the change may or may not be radical, or show a case for a change in the rate. For instance, the adjustment of "jigs" or other "fool-proof" appliance to an old-fashioned "centre" lathe or milling machine, transforming the job from a skilled to a semi-skilled, shows a case for a change in the rate from a skilled to a semi-skilled. Or, a sub-division of labour, which gives the skilled or heavy part to the man, and only the unskilled or light part to the woman—the mere "minding" of the machine, lifting of a lever, handing of a bucket, transforming the job from a skilled to an unskilled, shows in the same way a case for a change in the rate from a skilled to an unskilled, a man's to a boy's; although the man upon whom an additional burden is thrown has a claim at the same time to a rise. On the other hand, a mere improvement in a tool or "block," a correction in the action of the machine, which alters nothing in the character of the skill required in the operator, shows no case at all for a change in the rate; at least, not a change in the time-rate. A change in the piece-rate, on account of an improvement to the machine accelerating output, opens another question.* Again, a sub-division of labour, which gives a skilled part of the job to each operator, *e.g.*, the "oxyacetylene welder," unqualified as a boilermaker, the "toolsetter," unqualified as a grinder, the "fitter," qualified only on a narrow range of operations, shows in the same way no case at all for a change in the rate. The employer, who requires only a "specialised" worker, suffers no disadvantage from a lack of all-round experience, while the employer, who requires an all-round tradesman, cannot employ in any case an inexperienced woman. But the test on a readjustment of process remains always this: "What rate would have been paid, if male labour had been employed instead of female labour?" Nor can the employer claim during the truce of the war, that a job reserved before to a fully-qualified or skilled tradesman belongs,

*The practice in the cotton trade, by which the economic advantage from improvements in machinery is shared between the employer and the workers, deserves the consideration of the engineering unions.

in fact, to another category, owing to its simple or " specialised " character. The line of demarcation between the skilled and semi-skilled or unskilled worker, although shifting with the progressive simplification of process, follows no definite principle and only the relative strength of capital and labour ; and the employer must not change the position to his own advantage under cover of female labour, so long as the trade unions are compelled by patriotism or law to inaction. The present trick by which the employer creams off the easier jobs, giving these to the women at a lower rate and leaving only the harder jobs to the men at a no higher rate than before, forms a clear aggression against the workers.

Then, under the third and last head, an increase in the cost of production shows a definite disadvantage to the employer. The case is clear for a deduction from the rate, but in proportion only to the increase in the cost of production. A rise of 5 per cent. in expenses to the employer gives no reason at all for a fall of 50 per cent. in wages to the worker. A deduction from the rate is also not allowed except in respect of matters specified in a schedule and placing a definite handicap on female in competition with male labour. The concession to feminine disability lies otherwise too open to abuse by the employer. Nor are matters included in the schedule other than those " special " to female labour, *e.g.*, special apparatus or accommodation, special assistance provided to women and not to men. The employer cannot therefore take advantage of the clause in order to charge to the women expenses borne by himself in the case of the men. The discrimination in the rate will also not prevent the extension of labour-saving devices to male from female labour in so far as the men require them. The effect is at least improbable. A labour-saving device, bringing a necessary relief to the worker, forms almost inevitably an economy in production, and the employer will not wait to gain an advantage enjoyed by a trade competitor until he exchanges a male for a female staff. The exchange is not made in a day, even in war time. Meanwhile, the matter becomes no longer " special " to female labour. Nor can the employer take advantage of the clause in order to charge mere bad management to the account of the workers. A standard amount is fixed for each deduction in question in every factory alike. Otherwise, good management is penalised. On the other hand, each job stands by itself. The point is small but important. The women, whose employment throws heavy special charges on the employer making female labour unprofitable even at the minimum wage of an adult woman, will tend to be replaced by men at the end of the war, while the women whose employment throws none will tend to remain. The matters included in the schedule are also confined to the proved requirements of female labour, feminine disability being recognised only in reference to physical strength. No other sex distinction is clear. The supreme mechanic belongs, perhaps, to the masculine sex, as the supreme artist, chef or valet. Supremacy is a masculine

quality, whether in art or industry. But, in the ordinary round of the workshop, female labour shows no lack of mechanical aptitude. Nor is the short experience, incidental to "meantime" labour, always a disadvantage on a "repetition" job, and discounted by staleness. The need of working-women for supervision is also not exceptional, or a woman debarred by her sex from promotion or "setting the tools" herself. A modification of the men's rule is unnecessary.* The "welfare supervisor" is "special" to female labour, but the advantage is not clear except to the employer. The standard of efficiency reached by a man at 30s. a week, a woman will not reach at 15s. The employer, himself, expects less from a cheap class of worker, and will not learn the whole value until he pays the full price of female labour. The economy of high wages is proved once more since the war. The disadvantage to the employer must be actual. Now, what happens is this. The employer pays a woman a starvation wage and then gives as his reason her delicate health, the "new sense of responsibility" felt by himself. But this is to put the cart before the horse. Women are more fragile than men. Perhaps? But the abstract fact offers, in itself, no reason at all for a deduction from the rate; and the effect is only to increase the feminine liability to sickness and encourage female labour in unsuitable occupations. The employer has to show another case altogether, and that he employs the women *on easier terms than the men*, having a claim in return for a deduction from the rate to the extent of the extra expense entailed on himself. "Mortality by marriage," legal restrictions on female labour as to overtime or nightwork, belong to the same intangible category of feminine disability, the effect showing no actual disadvantage to the employer. In trades requiring a long specialised training or ability to work overtime or nightwork, female labour is not employed; while in trades requiring neither one nor the other the employer suffers no inconvenience, himself reaping the difference between the men's and the women's rate, and the women driving out the men in consequence.† A reduction in the normal hours of work shows a better reason to be included in the schedule. But, in point of fact, a shorter working day leads to an increase rather than a decrease in output, and the employer gains his own profit. The same argument applies to regular meal-times. However, the economy of short hours of work cannot be urged beyond its limits, or cover, for instance, a separate demand by women for half-time shifts. But new provisions must meet new contingencies. In fact,

*In some shops, employing together the fully-qualified tradesman and the mechanic dependent on the tool-setter, the practice shows a difference in the rate, but not more than 2s. a week.

†Thus, in the Huddersfield woollen trade, men and women competing as weavers and the women being paid a lower piece-rate on account of the legal restrictions as to nightwork and overtime, the whole brunt of seasonal unemployment falls on the men, who bear also the whole burden of seasonal pressure.

with the further development of labour-saving machinery, a lack of physical strength will cease, perhaps, to form a labour disability, and the present need disappear for a discrimination in the rate between the sexes. Meanwhile, two maxims are laid down for guidance. On the one hand, the women must be prepared to give way to the men in a temporary conflict of interests. The men are the established workers of the trade, whose energies have built up the trade union rates of wages, of which the women take only the advantage. Moreover, women are "meantime" workers, and have less at stake than the men in industry; while their interests lie bound for the present with those of their men folk in the home. On the other hand, the men must be prepared to modify the practice of the trade in order to meet the special needs of female labour, provided no prejudice is done to their own standard of living. Sex distinction is not sex privilege; indeed, sex equality is else only a name. The fable of the fox, inviting the stork to dinner, holds true for men and women in industry. The principle is this. The employer shall be free to employ either male or female labour, but reap no extra profit one way or the other, the rate being fixed according to the *job* or *working conditions* and not the *sex* of the worker.* Other arguments raised by the employer are beside the point. That a woman needs less than a man for support, that she works for "patriotism," "pocket-money," "fun," to pass the idle years between school and marriage, for anything except to earn a living; that the men are paid too much and the women shall be paid a sum "which is right and proper for a woman to earn," or about 2½d. an hour, in the wisdom of her employer; these points are altogether irrelevant. The standard of living demanded by working men or working-women for themselves, they alone have a right to determine, unless the employer himself is prepared to submit his own standard of living to the judgment of the workers.

The other argument raised by the men deserves a greater consideration. To allow a deduction from the rate on account of feminine disability encourages female labour in unsuitable occupations; while to insist on an equal rate for the sexes, notwithstanding a difference in productive value, encourages male and female labour in those occupations for which each is best suited. But the facts are by no means proved. In the first

* The example of the cotton trade is sometimes advanced as an argument against a discriminatory rate for male and female labour. The woman cotton weaver is paid exactly the men's rate, and holds her own in the trade. But the actual facts of the case must be borne in mind. (1) The system of payment is piece-work only. (2) The piece-rate varies with the weight of the cloth, *i.e.*, with the degree of physical effort exacted from the worker, and is discriminatory to this extent; the tendency being for the men to be promoted to the heavier cloths, while the women remain on the lighter cloths. (3) The women entered the trade at the same time as or before the men, and conditions have grown up in the factory not less adapted to female than to male labour, so that no occasion arises for new readjustments of process in order to meet the needs of a less physically robust class of worker.

place, a deduction from the rate is not proposed except in so far as the conditions of the trade are adapted by the employer in order to meet the special needs of female labour. On the contrary, the effect is to make suitable hitherto unsuitable trades. In the second place, male labour offers probably a certain advantage in every trade by reason of the greater reserve of physical strength. Witness the male tailor or costumier, chef or valet. Men cannot compete in a women's trade, but the competition lies in cheapness and not in value. In countries where male labour is cheap, men are preferred as domestic servants. The female " bogey runner," running a half-size trolley, shows, perhaps, a comparatively low productive value, but the char-woman, the laundry-woman, the kitchenmaid, shows, probably, a value no higher, and bears a heavier burden. Indeed, few trades appear less adapted to female labour than heavy domestic work. The provision securing to every woman a minimum wage sets, too, a limit to her employment in unsuitable occupations. The probable effect of an equal rate for the sexes, in spite of a difference in productive value, will be, in fact, less to encourage male and female labour in those occupations for which each is best suited, than to force women into the position of marginal labour, restricting them to those occupations for one reason or another undesirable to the men. Meanwhile, " sweating " is intensified by the segregation of the weaker from the stronger sex, and the evil reacts in turn on the men. The blackleg trade is a well-known phenomenon.

" Equal pay for equal work," as between skilled and semi-skilled or unskilled labour, opens another question outside the present reference, although female labour is not unconcerned. In point of fact, a simplification of process gives no reason at all for a fall in the rate, and an occasion instead for a rise. A new process affords a new profit to the employer, or is not else adopted. Moreover, the worker deprived of joy in his craft requires compensation in the form of a richer leisure; and short hours pre-suppose high wages. The present outlook shows, on the one side, a dwindling minority of skilled tradesmen, highly-trained and well paid, on the other side, a growing majority of semi-skilled mechanics or unskilled assistants, ill-trained and underpaid, and cut off more and more from promotion by the growing divergence in education and standard of living between the foreman and operative.* Meanwhile, the employer reaps the

*The view is taken by some authorities, that the use of automatic machinery and scientific methods of production, by reducing the cost of the finished article and consequent price to the consumer, will lead to an expansion of the trade, which will tend to reabsorb as toolsetters or toolmakers, the skilled men displaced on the machines by semi-skilled labour. But the highly-skilled work of the toolroom is also susceptible of a high degree of sub-division of process, and not unadaptable to semi-skilled labour working under skilled supervision, provided the worker has the natural aptitude and a certain standard of general education. In a highly-specialised machine factory, the proportion of workers requiring prolonged expert training or apprenticeship falls to a minimum, even in the tool-room. The argument fails to hold good except within narrow limits.

whole of the economic advantage from mechanical methods of production; while the trade unions, by accepting monopoly as the basis of high wages, give right to capital and divide labour against itself. This lesson is yet to be learned. There is only one standard of human labour, and only one standard of human living, which is the standard of the employer.

(2) "That young girls under 18 years of age, employed on work customarily done by men or women, shall be paid the time-rates and piece-rates customarily paid for the job, or such rates as are fixed for female labour, unless the employer is able to show (*a*), or (*b*), to the satisfaction of the trade unions concerned, or, failing agreement between all parties, the local joint committees representing the employers and the trade unions, or other body forming the ordinary machinery for the settling of disputes.

> "(*a*) That the young girl is undergoing a definite course of apprenticeship not inferior in educational value to that customarily undergone by boy apprentices. In this case a rate shall be paid not lower than the rate customarily paid to boy apprentices.
>
> "(*b*) That the young girl is undergoing a definite course of apprenticeship but inferior in educational value to that customarily undergone by boy apprentices. In this case, a rate shall be paid not lower than the minimum wage for a young girl of her age and experience.
>
> Any job performed indifferently by women and girls shall be classed as women's work."

The principle of the proposal is this. The employer must pay to young people the rate "customarily paid for the job," or else give a *quid pro quo* in the form of training. Nor is the matter without importance. No small number of young girls are employed on work "customarily done by men"; and the rate is not less cut, because a young girl is the sinner. Moreover, the problem of juvenile competition is more acute for female than male labour. A woman has less monopoly than a man, either in training or muscular strength, and young girls hold their own in output on light repetition jobs; while the women themselves, blacklegged by children, blackleg the men in turn. The exploitation of cheap juvenile labour will also prejudice the return of the women after the war to their own occupations, where their places are filled by young girls, complicating to this extent the problem for the men. On the contrary, "equal pay for equal work" makes immediately practicable the half-time employment of young people under 18 years of age, advocated in another section as a measure for education and against unemployment.

II. *The securing of a minimum wage for all women employed in the engineering trades, whether on work recognised or not recognised as women's work before the war.*

The statutory orders, including the advance, April 1917, fix a standard of 5½d.* an hour for women employed on work "not recognised as men's work before the war," with a lower scale according to age for young girls. But taking into account a rise of 75 per cent.† in the cost of living, the standard forms less than a subsistence wage. Moreover, the statutory orders are not applied except in an unpublished list of scheduled establishments, and an unknown number of women remain uncovered. No justification appears either for the fixing of two separate minima for female labour, according as the women are employed on men's or on women's work, and the more experienced worker tends to earn the lower rate. Nor are the men unconcerned; the lower rate paid in a women's trade prejudicing the return of the women after the war to their own occupations, and undermining the higher rate paid in a men's trade by the pressure of female labour towards the more desirable occupations. The position is as unsatisfactory from the point of view of the employer, who learns the effect already in factories employing women side by side in shell and fuse-making.

The following proposals are put forward:—

> "(1) That the standard fixed by the Minister of Munitions for women munition workers shall be raised to a minimum, not lower than the equivalent in real wages of the 17s. a week estimated by the Women's Co-operative Guild before the war as the minimum subsistance wage of an adult woman, for women over 18 years of age, with a scale reduced by not more than one-third at the lowest age for young girls undergoing a definite course of training; which minimum shall be guaranteed on piece-work as well as on time-work, and extended to all women coming under the Munitions of War Act.
>
> "(2) That a trade board, or trade boards, shall be established for the women's branches of the engineering trades, working forward from the war standard of wages."

The minimum, estimated as above, works out at 7d. an hour, or 28s. a week of 48 hours in July 1917, and the proposal errs only by moderation. But the standard must also be maintained after the war, and raised at every opportunity. The employer regards at present each new demand made by the workers for an advance in wages as an act of aggression on himself, and his resistance as an act of defence. But, in a society founded in justice, an act of defence becomes an act of aggression, and an act of aggression an act of defence, if the defender has less and the aggressor more than his share, depriving the other of the means of life. The forward movement of the trade unions, extending along the whole line of labour, must continue, surely, until every

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*The August advance adds another 2s. 6d. a week.

†July, 1917.

worker secures a fair share of the product of industry. Meanwhile, a trade board, working forward from the war standard of wages, offers the ready-made machinery in order to assist and support the women in backward trades, leaving the trade unions free to devote the whole of their energies to securing the rates " customarily paid for the job " in organised trades.

Nor is a trade board incompatible with the fixing of a national minimum wage for the whole of industry, as demanded by the Trades Union Congress, and forms, on the contrary, the necessary complement in order to raise a backward trade to a normal level. The Congress proposes a minimum wage of 30s. a week, and one rate for adult men and women; which latter principle is sound in so far as the rate is based on a minimum standard of living. The present discrimination in the rate between the sexes, apart from a difference in productive value, the employer and some economists defend on the ground that a man supports a wife and family, while a woman depends on others or supports herself alone. For this reason, the feminist seeks sometimes a solution to the problem of " equal pay for equal work " along the line of the state endowment of the mother and child, releasing the father from his present burden. But, even under existing social conditions, the difference between the needs of men and women is probably less than is generally supposed. The majority of working-women are self-supporting, and not a few support dependents. These facts are well-established. A woman employed in industry for the whole of her time like a man needs, too, something of his masculine freedom from domestic care. This reply a brother gives to a sister worker, complaining of the expense of washing. " Why don't you wash your overall yourself? My wife always washes mine." A working-woman, too, requires to support a housekeeper, an unpaid domestic. Why a spinster is condemned to a life of penury and solitude, while a bachelor enjoys " rich and riotous living," the reason is not clear to feminists. Moreover, a large proportion of the age contemporaries of working-women are bachelors without larger responsibilities than a young girl herself.

III. *The securing of a minimum of education for young persons between school-leaving and* 18 *years of age.*

The provision includes boys and girls, and cannot either be confined to the engineering trades. But the engineer is not less concerned on this account. The engineering trades, as we have seen in an earlier chapter, provide no training of educational value for the great and growing body of semi-skilled mechanics or unskilled assistants, and none too much for the fully-qualified or skilled tradesman. Apprenticeship is more and more confined to a select number of youths, destined by the management for promotion. But the simplification of industry shows no reason at all for the degradation of the worker, who has other duties to perform as citizen. The trade unions are not enough concerned

with problems of education. Control belongs to the trained intelligence; and democracy stands or falls, in industry as in politics, by the education of the rank and file of the workers. The trade unions cannot then admit a new body of semi-skilled or unskilled workers to the trade without security of education. The following proposal is put forward as a preliminary measure :—

" That the school age shall be raised to at least 14 years, and half-time school attendance during working hours shall be compulsory for all young people between school-leaving and 18 years of age,"

The proposal shows only a preliminary measure, and the trade unions must not rest until whole-time school attendance is secured to young people until at least 18 years of age, with maintenance grants in addition as they are withdrawn altogether from industry. The detailed curriculum forms a matter for educationists. One point only is clear to trade unionists. The object of education is education, and not a mere preparation of the worker to suit the convenience of the employer. Indeed, in a true democracy education must qualify each child to serve as a member of a governing class. A way is shown in our so-called " public " schools. The boy learns this, although he learns nothing else. But the qualities developed by education, concentration of mind, quick and accurate perception, adaptability, initiative, active instead of passive co-operation in the common purpose of the factory, these qualities are not unappreciated by the employer, although outweighed in the balance by the counter-attraction of cheap and docile labour. In fact, with the latest type of American automatic machine, the " machine minder " is eliminated altogether and the operator performs only the part of " supervisor " or " tool-setter," concentrating in himself the " brains at the top." Nor is education less important to a young girl because she leaves her trade on marriage. The skilled occupation of rearing young children under the artificial conditions of town living, demands a trained intelligence as much as any skilled occupation in industry. " Mechanics " offer, incidentally, a valuable medium of education; while a trained " machine sense " becomes more and more a part and parcel of the necessary equipment for everyday life.

IV. *The securing of adequate provision against unemployment.*

This provision implies, again, adequate security against unemployment for the male members of the trade unions; the discussion being confined to female labour, in order only to limit the subject within the reference.

Nor are the men unconcerned by female unemployment, and the problem will be acute. Thousands of women will be thrown out of munition factories at the end of the war, and will not pass at once into other occupations. The problem will not either be solved by an unemployment benefit of 7s. a week, and voluntary saving is out of the question for the great body of women munition

workers. Meanwhile, those unemployed women will congregate round the engineering trades, and become, apart from the hardship caused to themselves, a serious menace to the regular workers of the trade by forming a swollen reserve of trained or semi-trained labour. The trade unions cannot then give up any part of their present monopoly of the trade, without full security against unemployment. The following proposals are made with special reference to female labour.

(1) That young persons under 18 years of age shall be employed only on half-time shifts.

The provision is included already in the proposal to secure education, but is proposed again as forming a valuable measure against unemployment, by reducing a surplus of labour.

(2) (*a*) That the Education Authority, on being advised by the Board of Trade that the index of local unemployment has reached a given point, shall retain at school for whole-time education, with maintenance, a proportionate number of young persons of school-leaving age, for at least one scholastic term. Those young persons shall be selected for whole-time education, for whom the provision appears to be the most desirable in the opinion of the education authorities.

(*b*) That the Home Office, on being advised by the Board of Trade that the index of local unemployment in a certain trade or trades has reached a given point, shall remove from the said trade or trades a proportionate number of young persons under 17 years of age for whom the Education Authority shall provide whole-time education, with maintenance, for at least one scholastic term. Those young persons shall be selected for whole-time education, for whom the provision appears to be most desirable in the opinion of the Education Authority.

The advantages of the measure are obvious. The best place for young people is at school, while the corresponding " training " for adults offers a comparatively poor return in educational value. Young people pass also more readily into new occupations. Nor will the burden be heavier on public funds, because two young girls are removed in order to make way for one woman after the institution of half-time school attendance. A sum of 10s. or 15s. a week, forming a substantial grant for a young girl living at home, will not maintain an independent woman, perhaps herself supporting dependents. But the employer, himself, will prefer the adult worker after the present exploitation of juvenile labour is checked. The measure will facilitate at the same time the return of the women to their pre-war occupations, where their places are filled by young girls, and ease in turn the problem for the men. Moreover, the strain of the munition factory has pressed with exceptional severity on the boy or girl worker, drawn prematurely

into industry, and the complete removal of these young people from the workshop for a change of occupation or recuperation, forms in itself a desirable end.

(3) " That adequate maintenance, with the option of training, shall be provided for all unemployed women for whom no places are available in their own trades, pre-war or present, at the Employment Exchanges."

But the removal of young persons from industry will not solve the whole problem of female unemployment, and adequate provision must be made for all women. The various works undertaken by public authorities in periods of unemployment are seldom adapted in character to female labour ; and the provision of some form of training, with maintenance, appears as the best alternative. Schemes are suggested in continued general and technical education, instruction in housewifery and the making of articles for home use, the training of midwives and mothers' helps, the latter a new and useful profession for middle-aged women, practical instruction in infant care for young and expectant mothers, the last measure offering the incidental advantage of removing these women temporarily from industry.*

V. *The protection of female and immature labour from occupational injury.*

The men are again concerned, although as men and not as trade unionists ; and the matter becomes more urgent with the opening of new trades to women and young people. The tendency to speed up on repetition jobs shows again a growing evil, and young people suffer especially. The damage done by nervous exhaustion during the critical years of adolescence will, too, not be repaired because a young girl leaves her trade on marriage. The recommendations of the Health of Munition Workers' Committee must be strictly enforced during the war, and the Factory Acts restored at the earliest opportunity ; while new knowledge must be gained in order to pursue a progressive policy. The following proposals are put forward :—

(1) " A reduction in the legal hours of work to 48 a week after the war.

(2) " That the number of factory women inspectors and medical officers attached to the factory department shall be increased.

(3) " That routine medical inspection and treatment shall be extended to all young persons under 18 years of age. The inspection and treatment shall be carried out by the school medical officer during school hours.

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*Instruction in infant care ought clearly to be given to the young expectant mother, and not to the school-girl who may or may not become a mother, and will certainly forget the knowledge before she requires it, even if the knowledge itself is not meanwhile transformed by the medical expert.

(4) "That a departmental enquiry shall be undertaken by the responsible Government Department or Departments into the effects of occupation on maternity.

(5) "That the appointment of a forewoman or woman supervisor shall be compulsory in factories or workshops employing young girls under 21 years of age."

A shortening of the legal working day needs no insistance from the point of view either of humanity or production; and, enforced at the end of the war, will tend to prevent unemployment.* Not less urgent is the need for a larger staff of women factory inspectors, to whom working-women owe more perhaps, than to any other agency a gradual improvement in their working conditions. The present staff numbers 17, and routine inspection is out of the question. The staff of three medical officers attached to the factory department is not less inadequate to the task. Meanwhile the nucleus of a new and valuable medical department, transferable to the factory department after the war, appears in the staff of women medical officers appointed by the Minister of Munitions in national factories in order to watch the health of women and young girls exposed to risks of poison. The full protection of the worker, or total abolition of dangerous processes, will be hastened unquestionably by the advance of scientific knowledge. The routine medical inspection of young persons shows another measure of reform long advocated by medical officers, and becomes practicable for the first time with half-time school attendance. A scientific enquiry into the effects of occupation on maternity fills as obvious a need, whether from the point of view of a wise restriction or a wise extension of female labour; and only a Government Department has the full facilities for enquiry. The appointment of forewomen or women supervisors, in order to protect young girls from unnecessary distress, forms again an essential means to health. The measure will check no doubt the employment of young girls in small workshops, or workshops employing only a handful of women; but the effect is not undesirable. The proposals aim as far as possible, to separate the case of the expectant or nursing mother and growing girl, for whom a complete release from industry offers, perhaps, the right solution, and the case of the able-bodied adult woman for whom the same degree of restriction is unnecessary and in so far undesirable.

VI. *The securing of a direct share to the worker in the control of his or her working life.*

The matter is not outside the present reference. In the first place, the desire of the worker for a direct share in the control

* Too much reliance must not be placed on a shortening of the working day to an 8-hour limit as a means to prevent unemployment. The effect is as often to increase as to diminish output.

of his working life forms the finest inspiration of the forward trade union movement; and a foundation must be laid before the admission of a body of less advanced workers to the trade. The future is otherwise prejudiced. In the second place, the desire of the worker for a direct share in the control of his or her working life belongs also to working-women. In the third place, the new movement of "welfare supervision," developed with extraordinary rapidity in connection with female labour since the war, shows signs of becoming, unless controlled by the workers, a new and insidious form of "scientific management," extending the control of capital over labour from the workshop into the home and intimate social and personal concerns of the worker. Nothing is said against "welfare" itself. Indeed, the new insistence by the employer on "welfare" brings a gain to the worker as well as to output. But working-women as working-men refuse to barter "welfare" against freedom, and view with alarm the growing control by the employer over the worker. The welfare supervisor claims to serve, in theory, the state, the employer, and the worker; but the interests of each may or may not coincide, and she serves, in practice, only the party who appoints and pays her. "Tact" is the quality appraised above others by the employer in the welfare supervisor, and "tact" bears, as diplomacy, a suspect character. There ought not to be such a lot to be tactful about. Thus, the "tact" of a welfare supervisor calls a female "toolsetter" a "machine assistant," in order "to save the susceptibilities of the trade unions," while the rate is reduced from 47s. 10d. to 17s. 6d. a week. The "tact" of the welfare supervisor appears to the worker as reassuring as the "benevolence" of the employer. The three-fold function of "welfare supervision" cannot then be vested in a single officer, responsible only to the employer, but must be transferred to the rightful authority. The prevention of accident or occupational disease belongs to the factory inspector and medical officer; the securing of the workers' standard of living, his own contentment and recreation, belongs to himself or his elected representative; while only the promotion of output, workshop discipline and efficiency, together with a harmonious relationship between capital and labour, concerns the employer and his appointed delegate. The following proposals are put forward:—

> (1) "That a Works' Council shall be formed for each works or works' department. The Council shall take the form of two distinct committees representing the employer and the workers and meeting together and separately. At least one-half of the members of the workers' committee shall be appointed by the trade unions concerned.
>
> (2) "That the Works' Council shall form a sub-committee to be known as the Welfare Committee. The Committee shall have power to co-opt additional members."

The constitution of a works' council cannot be discussed in detail. On the one hand, the workers' committee must represent the whole body of the workers concerned in each works, or works department, or the measure is undemocratic. On the other hand, the trade unions must secure definite representation, in "non-union" as in "union" shop, or the workers' committee will lie at the mercy of the employers, creating only a new danger to labour. For a similar reason the employers' and workers' committees must meet separately as well as together in order that the latter shall reach an individual policy, and present one front; or the disunited workers will lie again at the mercy of the united employer, and a false agreement cover an actual conflict between parties. Again, the reference of the works' council must include every matter affecting the working lives of the workers, who are concerned in the product of industry as the employer in industrial efficiency. But, against this, its function must be initiatory, critical, rather than executive, and subject to national or local agreements between the employers and the trade unions in general matters of trade regulation, rates of wages or hours of work, or will undermine the rightful authority of the employer and trade union. Inspiration will spring from the workshop, transforming even "scientific management" from an enemy weapon to an ally tool of labour.* But the ultimate sanction, or veto, including the right of lock-out and strike, must remain with the employer and trade union.

The welfare committee forms a sub-committee of the works' council, with power to co-opt members; the latter provision offering a convenience in workshops including female labour, but without a woman on the works' committee. The contingency is not improbable, in view of the comparative youth and inexperience of working-women. The reference includes sanitary and health conditions, first aid, cloak-room, canteen or hostel arrangements, personal and social amenities; matters concerning the workers alone being discussed by themselves in separate session and not in joint session with the employer. Nor are matters lacking for immediate discussion. Thus, the workers, who view with concern the provision of canteens and hostels by the employer, have yet to decide the best alternative, whether in individual, trade union, municipal or co-operative enterprise. The institution of half-time shifts for married women or others having half-time home duties shows another matter for discussion in special reference to female labour. Soldiers' widows, or wives of disabled men, preferring to remain in industry and supplement a narrow pension rather than reduce their standard of living, mothers of young children, obliged

*The worker objects, and rightly so, to "time" and "motion study," and other devices of "scientific management" degrading himself to the level of an automaton. Under a humane "scientific management," processes or parts of a process, susceptible of exact measurement by these means will be performed by machinery and not human beings, a development which will be certainly hastened by a substantial rise in the price of general labour.

to add to the family income, wives or daughters, reluctant to lose the economic independence enjoyed as war workers, will prefer, perhaps, a part-time to a whole-time job after the war; and the experiment becomes practicable for the first time with a rise in wages. Neither will the interests of labour be prejudiced; and a woman employed for short hours of work will stand out for a high rate of pay. Nor will the interests of capital suffer; and a short shift will yield a high output and overcome to some extent the less elasticity of female labour with regard to overtime. Moreover, the experiment is not without a future significance. Leisure is as desirable as wealth, and a woman desires a full share. A shorter than an eight-hour day is probably impracticable in the engineering trades owing to the heavy standing expenses; and a half-time shift points, perhaps, to the future normal day of female labour. But the semi-skilled or unskilled worker of either sex will claim, surely, one day a half-time leisure, and only the foreman or manager, enjoying "the exercise of the brains at the top," prefer a whole-time working day. The institution of the "sick worker" shows another matter for discussion in special reference to female labour. The device is not unknown in the cotton trade, the female operative attaching a "sick worker" or understudy, the latter a retired member of the trade; and one takes the place of the other at times of indisposition or home emergency. The feminine liability to temporary sickness or claim from the family and consequent bad time-keeping, by this means is provided against. The welfare committee will also include within its reference co-operation with the factory inspector and medical officer, and, play in fact, the woman's part in the factory to the man's part played by the works' council.

The proposals made in order to safeguard the trade union position against the admission of female labour in the engineering trades are summed up as follows:—

(i.) The securing of the rates customarily paid for the job on work not recognised as women's work before the war.

(ii.) The securing of an adequate minimum wage for all women employed in the engineering trades.

(iii.) The securing of a minimum of education for all young persons under 18 years of age.

(iv.) The securing of adequate provision against unemployment.

(v.) The protection of female and immature labour from occupational injury.

(vi.) The securing of a direct share to the worker in the control of his or her working life.

Nor have the men, granted these conditions, anything to lose but everything to gain by the removal of all restrictions on female labour, stamping out for once and all the abuse of the "blackleg"

and "sweated" woman worker. What part in the future will be played by women in industry, the future alone will decide. A principal part appears improbable, although individual women succeed as fully-qualified tradesmen, forewomen, managers, trade union leaders, and every woman insists on economic independence. But from physical, psychological, and social necessity, women will remain "meantime" workers, whose dearer interests lie rather in the home than in the factory, in living than in working, in people than in things. For this reason, working-women of high intelligence and strong original personality will always prefer, perhaps, subordinate to leading parts in industry. The deep facts of human nature do not change, and neither men nor women need fear to lose the genius of the other sex—man, the maker and guardian of wealth, woman, the maker and guardian of life.

Alternative Recommendations to the Main Report.

MEMORANDUM I.

In putting forward these suggestions and criticisms to the conclusions of the main report we have in mind a clear conception of the principles which should guide the Labour Movement in its attitude towards the continued employment of women in the Engineering trades after the war. In our view the main consideration must be that of preserving intact, and increasing wherever possible, the strength of the Trade Union movement; and even if no objection could be taken on other grounds to the admission of women to a particular craft or process, Labour cannot be expected to acquiesce in such admission if it involves the weakening of Trade Unionism. This principle appears to us fundamental, and it is behind the whole of the present memorandum.

While holding the above view we agree with the main report in thinking that the exclusion of women from Trade Unions or occupations on grounds of sex alone is neither desirable in itself, nor contributory to the strength of Trade Unionism. We desire to see all purely sex barriers to women's employment flung down, but we think that the main report goes very much further than this.

We desire to point out at the outset that in our view the problem of women's employment is in the main only a part of a very much wider question. The difference between the problem presented by the relation between women and skilled men, and that presented by the relation between the various classes of male workers is much less fundamental than it is often thought to be. Many, therefore, of the considerations here put forward apply equally to both problems, as is indeed the case with many of the suggestions put forward in the main report.

We come now to particular points of difference :—

1. *The Admission of Women to Trade Unions.*

We agree that women should not be excluded by their sex from membership of any Trade Union ; but we desire to see women admitted to Trade Unions on precisely the same terms as men. The main report points to the small part played by women in the government even of those Trade Unions in which they form a majority of the membership, but it does not sufficiently emphasise what is clearly the most important reason for this, *i.e.*, that the life of women in industry is very much shorter than the life of men, and that therefore they have not the same opportunity for reaching places of prominence in mixed Trade Unions. We are opposed to the reservation of seats on the governing bodies of the Unions to women, while we favour strongly the reservation of places to particular crafts or occupations. The same objection does not apply to the formation of Advisory Women's Councils, where such councils seem desirable to the women members of the Unions. We are, then, in favour of the admission of women to Trade Unions on precisely the same terms as men, but we think that any special representation of women's interests and women's point of view should be accomplished by the spontaneous act of the women themselves, in forming advisory bodies, Vigilance Committees, and the like. The main report refers to the exclusion of women by the Amalgamated Society of Engineers, and the other skilled engineering unions. In this connection we desire to draw attention to the fact that the A.S.E. and most of the other Unions have aimed at excluding from membership as far as possible not only women, but also male emergency workers who have come to the industry during the war. The motive suggested in the main report, *i.e.*, the difficulty for a Trade Union of displacing its own members after the war holds no less in the case of semi-skilled and unskilled male workers than in the case of women.

2. *Payment of Women's Labour. Equal pay for equal work.*

The main report comments adversely upon what it describes as " crude and disingenuous interpretations of the principles of equal pay for equal work." We regard its interpretation of the principle if not as " crude or disingenuous," certainly as fraught with the gravest dangers to standard rates. The main report suggests that, where women replace men, the same rate shall be paid, unless the employer can prove one of three things. We are opposed to all three grounds of deduction from the rate.

(*a*) The suggestion that the employer should be allowed to pay women a lower rate during a probationary period of training seems to us exceedingly dangerous, and has in fact worked most adversely during the war period. We suggest that the cost of training of a worker in a new occupation ought to fall on the employer, and that any system under which it falls on the worker will merely serve to create for the employer a reserve of

labour which will make it easier for him to force down the standard rates. We are opposed to the whole idea of reduced rates during a probationary period other than that provided under apprenticeship in accordance with Trade Union regulations; we are even more opposed to any system which would differentiate in this respect between men and women.

(*b*) The suggestion that a deduction should be made from the rate on account of any readjustment of process which would reduce the work to a less skilled category seems to us to require the most careful watching. Parallel practices in the case of men have for many years been responsible for serious inroads upon the standard of life of the skilled workers. To agree to the right of the employer to make deductions in the case of women would only intensify the evils arising from the practice which already prevails where Trade Unionism is weak. Readjustments of process, resulting in making industry more productive, ought not to be an excuse for reducing the workers' standard of life, but a reason for improving it. The settlement of rates in new or altered processes must rest with the Unions through collective bargaining, without any prejudging of the issue such as the proposal made in the main Report would involve.

(*c*) We are also opposed to any deduction from the rate on account of special provisions made by the employer for the purpose of the employment of women. First, because we hold that to agree to such a proposal would be to encourage the use of cheap labour, and so, by providing a reserve of labour for the employer, still further weaken Trade Unionism. Secondly, when it is suggested that the provision of special machinery (jigs, &c.) for female workers, or the lightening of the task, should entail a reduction of the rate, we cannot but see that the door is being opened to a very grave abuse; for even if the safeguards suggested in the main Report were applied, the adoption of the proposals would give the employer a ready means of cutting the rate. The main Report itself points out that the employer "holds the whole of the data with regard to production which is seldom available to the workers." This being so, the Trade Union is clearly not in a position to bargain with the employer on equal terms in deciding what deductions from the rate shall be made. The only possible course for the Trade Unions is to adopt the principle of no deductions.

Minimum Wage.

In our view the basis for minimum rates, weekly as well as hourly, for women as for other classes of labour, should be the prevailing Trade Union rates for the job where such exist, or should be established by collective bargaining. We should regard with considerable apprehension any suggestion that the method of legal enactment should be applied and a National Minimum set up. With regard to Trade Boards, our view is that the case for extension of the Trade Boards Act to women in the engineering

industry cannot be regarded as proved without considerably more discussion and investigation than it has received in the present report.

3. The educational proposals of the main report seem to us timid and indefinite. We suggest not only the immediate raising of the school age to 14, but its compulsory raising to 15 within five years, and further, the granting of powers to Local Authorities to raise it to 15 immediately, and after five years, to 16. We should, of course, demand far more than this if we regarded it as possible to provide the necessary teaching staff within a shorter period. In any case, the raising of the school age up to 18 should proceed as fast as the training of the necessary teachers permits.

4. *Control of Industry.*

We regard as undesirable the raising of the issue of Industrial Control in the incomplete form in which it appears in the main report, and we are certainly not prepared to endorse the proposals there put forward. In our view, the question of workshop control by the workers should only be approached by Labour from one point of view. Effective workshop control can be based only upon strong Trade Union organisation in the workshop. What we desire most of all is to see strong Trade Union Committees of Shop Stewards. These might or might not meet jointly with the management for the discussion of problems and points of difference. We hold strongly that no Committee can be acceptable to Labour in which the whole of the workers' representatives are not Trade Unionists appointed by Trade Unionists and in close contact with organised machinery of Trade Unions. As it is impossible to argue this matter fully in such a report as the present one, we should have preferred to see the greater part of this section omitted.

Indeed, there is only one part of this section which we can regard as coming within the terms of reference of the Committee, since this alone has special application to female workers. We refer to the points raised in connection with Welfare Work. We desire to state our entire opposition to all systems of " welfare " which are not directly and exclusively controlled by the workers themselves, and we endorse all the remarks inimical to " welfare " made in the main Report. In our opinion " welfare " could not form a proper subject to be dealt with by any Joint Committee of Employers and Workers, but should be entirely under the control of the workers.

5. *Married Women.*

To encourage the employment of married women in industry properly so called seems to us in most cases exceedingly undesirable from a social point of view, and also exceedingly dangerous from an industrial point of view. The woman worker who is not dependent on her earnings in industry is already in some districts a serious danger. Regular half-time shifts of married women would inevitably tend to reduce standard rates and to equip the employer with a reserve of cheap labour.

Returning from these particular criticisms to the general question involved, we desire to make our general attitude as clear as possible. In the first place, we believe that we differ from the main Report in regarding as both possible and desirable a far more complete restoration of Trade Union conditions than the Report contemplates. We hold that the changes introduced by the war, although in some cases permanent, are, in the large majority of cases, temporary in character. In our view, when industry returns to peace time conditions, very much of the standardisation which the war has brought about will necessarily be again undone. In may be necessary in certain particular cases for the unions which have received from the Government pledges of restoration, to consider the acceptance of a *quid pro quo*, but we are strongly of opinion that every *quid pro quo* should be most carefully scrutinised, and that any attempt on the part of the employers or the State to escape the fulfilment of their pledges should be resisted unless it can be shown that the alternative offered is preferable to restoration from the Trade Union point of view. It may be urged that the effect of our recommendations would be to drive women back into the marginal industries, and into the position of marginal labour in other industries. To some extent we agree that this is so; but this is, from the social point of view, far less disastrous than the overwhelming of the Trade Unions by the breaking down of their standard rates, rules and customs, *i.e.*, their economic strength. The hope for women both as wives and as workers, no less than for men, lies in the strengthening of Trade Unionism.

While we cannot accept the recommendations contained in the main Report, we should strongly urge, as an immediate policy, a clear understanding between the various grades and sections of workers whom the problem of restoration concerns. The alliance between the A.S.E. and the N.F.W.W., to which the main Report refers, has not led as yet to any attempt to work out a common policy or secure a common attitude on after war questions. We regret that there seems little chance of the suggestions contained in the Report with regard to the organisation of women in the same Trade Unions with men becoming operative in time to be of use in connection with the immediate after war problems; this being so, it is essential, if the employers are not to be placed in a position to play off section against section there should be a close and cordial understanding between the skilled unions, general labour unions, and women workers. The main Report refers to the promises made by the leaders of the women's unions that women will acquiesce in the restoration of Trade Union conditions. We doubt, however, whether this policy is accepted by all the women's leaders, and still more whether it is accepted at present by those unions in which semi-skilled and unskilled emergency workers of both sexes are organised together. Industrial feminism is full of menace to the Labour movement, even more than the industrial masculinism of which the feminists complain.

Unfortunately, the attitude of the skilled trades towards women's labour leaves much to be desired. While it is undoubtedly necessary for the skilled trades, which are, after all, the backbone of Trade Unionism in the engineering industry, to secure themselves absolutely against any cutting of rates, it is certainly not necessary for them, as they too often do, to acquiesce in low wages for women simply because they do not like the employment of women; and because they feel that the more money women get the more likely they will be to stay in the trade. This is not only prejudice but folly, for low wages cut both ways. What is needed, and has never yet been secured, is a fuller understanding by each section of the point of view of the others, and at least an effort to reach a common policy.

G. D. H. COLE.
MONICA EWER.
W. MELLOR.

MEMORANDUM II.

I differ from the main Report largely because of the favoured position it proposes for women.

This demand for preferential treatment seems to me to afford the employer an excuse for exploiting woman labour, and to buttress him in so doing.

The pledge for restoration given to the Trade Unions by the Government and the employers ought not, and must not, be so lightly set aside.

The danger of the wages and conditions of skilled men being depressed and broken down is already sufficiently great. This danger is made a much more menacing one by the support of experts and students of public affairs being lent to the process.

For other reasons entirely I cannot sign the Minority Report.

I venture to enumerate my objections:—

I am in favour of the granting of representation to women *qua* women on Executive Councils, both from the point of view of the safeguarding of their special interests and the greater assurance of their becoming permanently organised which the proposal contains.

The objection to a probationary period, and the lesser wage for such period, appear to me to be doctrinaire and unpractical.

For good and sufficient reasons the Unions concerned have agreed to these proposals as a war measure and I should favour the parties discussing this aspect of the problem in confident expectation of a satisfactory working arrangement accruing.

On the question of a Trade Board for the Engineering trade I think such a Trade Board inevitable.

It should deal only with those branches of the industry classified as "Women's Work."

The Trade Unions should be sufficiently strong to take care of the interests of all in any other department of the trade.

Apart from the question of Welfare, on which subject I append my views, my objections to the Minority Report are exhausted, except that both it and the Main Report deals much too cursorily with the important question of Workshop Control.

I express the hope that this question will be separately tackled and exhaustively dealt with.

WELFARE.

I think the Employers' point of view should be considered in this connection.

He will say: "You desire more amicable relationships between my workpeople and myself."

"You ask me to agree to Workshop Committees and Councils. You want me to meet my workpeople on all matters of technical and controversial subjects, and yet you propose to rule me out of all these opportunities of building up permanent closer relationships."

"In the past I have been accused of not ministering to the social side of life, and now the chance has come I am to be cut out of all those amenities. I refuse to accept such a handicap."

Further, I am unable to appreciate the objection to Welfare, *qua* Welfare.

F. S. BUTTON.

MEMORANDUM III.

This part of the Committee's report lays down definite lines of policy with which we cannot on the whole concur.

(1) *After the War.*

In dealing with the position of women after the war in the engineering industry, the report does not appear to lay sufficient stress on the arrangements arrived at between the Ministry and the men's unions in 1915.

It must be remembered, in the first place, that the agreement by which women were admitted into the engineering trades was an agreement between the men and the Government. No representative of the women was consulted; and this was not unreason-

able in itself, as the women had at that time no *locus standi* in the matter. The trade belonged to the men and they laid down, in consultation with the Minister, the terms upon which women should be admitted. They did so, subject to full and explicit pledges from the Government. It is clear that those pledges cannot be treated as non-existent ; and that if, for any reason, those pledges cannot be literally redeemed, equivalents satisfactory to the trade unions concerned should be substituted.

It appears to us that the report dismisses too easily the moral obligation upon the Government in this matter.

(2) *Suggested Conditions under which Women might be employed.*

(*a*) We see no objection to a period of probation provided that the length of the period and the wages paid are agreed to by the trade unions concerned.

(*b*) The question of whether, on account of any adjustment of process a lower rate should be admitted for a job is a question to be decided on its merit and by the ordinary methods of negotiation. It has nothing to do with whether the operator is male or female.

(*c*) We are in entire disagreement with the proposal that the rate to be paid to the operator on a job should be lowered on account of extra cost to the employer. To admit such a principle would be fatal to the establishment of any standard rate whatever. The question of the cost of production of any class of goods is a question on which the employer only has full information. It would be impossible for the worker to check or criticise any statement of the kind put forward by the management. To let such an element enter into rate fixing would practically be to make the employer the judge in his own case.

(3) *Industrial Control.*

On the question of Industrial Councils we find ourselves in complete agreement with the criticisms of Mr. Cole, Mrs. Ewer and Mr. Mellor in their alternative recommendations.

Workshop control without efficient organisation is impossible and the establishment of Workshop Committees in unorganised firms would prove a serious obstacle to effective organisation.

(Signed) MARY R. MACARTHUR.
A. SUSAN LAWRENCE,

Appendix I.

REPORT ON ENGINEERING INDUSTRY, CLYDE DISTRICT.*

The report has no pretension to completeness. In the first place no report at present on the subject could be complete since the substitution of women for, and, in a much greater degree, the addition of women to male labour in the engineering industry is going on at an accelerated pace. In the second place, the severe limitations on the writer with regard to time and opportunity for investigation have restricted it in several important respects. No information has been got directly from employers, and in that matter dependence has had to be made on opinions and statements given, most of them quite casually, some of them quite definitely, to Trade Union representatives at conferences and meetings between masters and men. The information about the other points has been collected from interviews with (i.) workers of both sexes, (ii.) foremen and supervisors, and (iii.) officials of the men's and women's unions. Statistics have been very difficult to get, and where given, care has been taken to indicate their actual value. The facts and opinions thus secured have been supplemented and regulated by the fairly wide—but necessarily rather one-sided—experience and knowledge of past and present conditions in the industry held by the writer, who is an operative engineer and an active Trade Unionist. The Clyde District is defined—except where otherwise stated—as the industrial area on both banks of the River Clyde from Rutherglen to Dalmuir and Renfrew, with Paisley and Johnstone. This area includes Glasgow, Govan and Clydebank.

The subject matter of the report has been dealt with under the following heads :—

1.—Movements of Labour.
2.—Processes.
3.—Hours of Labour.
4.—Wages.
5.—Efficiency of Labour.
6.—Health.
7.—Trade Union Organisation.
8.—Trade Union opinion on the Main Question.
9.—Conclusion.

* Written in August 1916.

1.—Movements of Labour.

(*a*) *Men.*—Among skilled, and, in a less degree, semi-skilled men in the engineering industry, there has been comparatively little enlistment into His Majesty's fighting forces, and a number of those who left in this way have been returned to the workshops. The following estimate of the approximate numbers of skilled and semi-skilled men, including fitters, turners, and machinists of all sorts, in the Clyde District—excluding Paisley and Johnstone—was given by a Trade Union official:—

Prior to the War	23,000
With the Army and Navy ..	2,000
	21,000
Brought into the District ..	1,000
Number at present	22,000

(*b*) *Women.*—Before the war there were, comparatively, a very few women employed in engineering. Of these by far the largest number were engaged in making sewing machines and bolts, nuts, and rivets. None were employed in general engineering. As far as it is possible to give an estimate of the additional total number of women at present in the industry it appears to be round about 7,500—6,000 being engaged in shell-making and 1,500 in general engineering.

At the end of May the Government Commission to Effect Dilution (Clyde District) had put in force, after conferences with the employers and men concerned about 90 schemes, providing for the introduction of 4,500 women to work hitherto done by men. Of these only 1,500 were actually at work by that date, and about one-third were doing labouring work of various kinds. This leaves a round number of 1,000 women, probably rather less, doing skilled and semi-skilled work in the engineering workshops.

As the processes in the making of shells are similar to those in general engineering the influx of women has been to work which in normal times would have been done by men.

(*c*) *Sources of Influx.*—In the early months of the war there was a rush to the shell-factories (i.) of women who were the wives and relatives of men who had gone to the war, and deprived them at once of their earnings and of the necessity for housekeeping, and (ii.) of women in industries which were depressed through the immediate economic effect of the war and the fear of what might happen. With a few exceptions, the women were of the working-class, and that is still true. At first the proportion of married women was large—in a number of factories 30 per cent. to 50 per cent.—but as the demand grew the supply was more and more drawn from women already working in all kinds of trades—in some to such an extent that the Labour Exchanges are now insisting

that applicants from them for munition work shall produce a clearance certificate. There is of course a limit to this source of supply and, while at present the proportion of women previously employed is growing, it is probable that, in the near future, it will be checked and that of women from home will increase in turn. The same may be said of the relative number of married and single women. In the case of women previously employed the movement has certainly been from lower-paid to higher-paid work. All but a small percentage of the 7,500 women-workers come from Glasgow and suburbs.

(*d*) *Summary.*—If the above estimates be taken as approximately correct, the number of skilled and semi-skilled men engaged in the engineering industry in the Clyde District has been diminished by about 1,000, or from 4 to 5 per cent. Excluding labourers, there are about 5,000 women in shell-factories and about 1,000 in general engineering, or a total addition of 6,000 doing work similar in character to the men. The net increase in the number of workers —excluding labourers—in the industry is thus about 5,000, say 20 per cent. to 25 per cent. Women employed prior to the war in sewing-machine and bolt, nut and rivet manufacture have been left out of the account. A considerable number of men have been removed from work at the lathe, machine and bench to supervise the women. Of the women a large, but presently diminishing, proportion were at home prior to the war, either as wives or housekeeping relatives, the rest have transferred themselves from all kinds of industries and are still doing so despite their employers' attempts at checking the movement. While a few have come from as far as the United States of America and Canada, and more from different parts of Scotland, the total immigration from outside the area is almost negligible.

NOTE.—*At date of going to press* (*August,* 1917) *the number of women employed has probably not increased by more than* 50 *per cent. in each category.*

2.—Processes.

(*a*) *Work being done by women* :—

(i.) *Shells :* Women are performing all the operations on shells, ranging from anti-aircraft 2-pounders to 8 in. H.E. The principal operations are cutting and facing ends, rough-turning and finishing external surface of shell-body, rough-boring and finishing inside, rough-turning and finishing nose, screwing and tapping shell for nose-piece and base-plate, turning and screwing base-plate, grooving and waving shell-body for copper-band, turning copper-band, &c.

The automatic type of machine used, reduces to a minimum the demands on the operator's skill and attention, but the work requires the expenditure of a large amount of physical energy. (i.) One woman rough-turns an average of 100 shells, weighing

at the machine 32 lbs. each, per shift of 10¼ hours, *i.e.*, she lifts 32 lbs. weight in and out of the machine, from and to the floor, once every 6 minutes. In this case the labour of tightening up the " chuck," which grips the shell, by means of a lever, is very heavy in addition. (ii.) Another woman finishes the nose of 170 shells weighing 15 lbs. per shift. (iii.) On the detailed pay-line of a woman employed on 4.5 in. shells—weighing from 45-50 lbs. in the rough to 28-30 lbs. finished—she is credited with turning out 270 shells in one shift (at night) of a little under 10 hours. Her average for the week was 216 per shift. In this factory there are women labourers in the proportion of one to every three machines to help with the lifting.

The period of training for shell-machinery is very short, generally a few weeks.

(ii.) *General.*—Dilution of labour in the engineering industry has not so far taken place to any great extent. Women have been introduced into all departments—fitting, turning, and machine—but comparatively few are doing skilled work. Where the job was previously done by a skilled man, the operations are usually sub-divided and the woman does the simplest of these, and under supervision. E.G. (*a*) Remarks on Schedule of Details of a Dilution Scheme providing for the substitution of 35 skilled turners by women. " It is proposed to break up the present operations into two or more simple operations to enable unskilled female labour to handle it. . . . It would probably take five skilled turners about five weeks to give the necessary instruction, after which three would be sufficient for supervision." (*b*) In a machine-tool shop, women scrape the beds of lathes, and file off the rough edges of gear-boxes, men in each case finishing off the work, which prior to the war was entirely done by them. In this sense the work is dissimilar to that done by men. There is, however, a small number of women performing skilled operations as they were done prior to the war, but under the supervision of skilled men.

Of the much larger number on semi-skilled work, the greater proportion are operating drilling and antomatic machines. In general this work is the same as when done by men, but it is supervised by the latter, although there are exceptions to this.

The usual training period for women on skilled work, as provided by the dilution of labour schemes, is four months ; that for those displacing semi-skilled men is two months.

(iii.) *Scientific Instrument Making.*—There was a number of women engaged on this highly specialised section of the industry prior to the war, but it has been added to considerably. The largest firm of this character is of a very progressive type, always on the look out for new ideas both with regard to its methods of manufacture and organisation of labour. At present large extensions are being made with the intention of capturing the continental trade in optical instruments. It is the intention after the

war to employ women to a large extent in this way. A proposal was put forward by those employers to commence a system of three years' apprenticeship for girls, but the Industrial Committee of representatives of the men in all trades in the workshops rejected it. This Committee meets the management regularly, and its convener has been offered an office for the purpose of the Committee.

The training period for the women introduced under the "dilution" scheme to this highly skilled occupation is usually four months.

(*b*) *Shop Organisation.*

(i.) *Organisation of Labour.*—In both shell-factories and general engineering workshops, the women are as a rule, organised in squads of from two or three to thirty-six. In shell-factories the average appears to be from 10-20, while in the other shops it is about 5-10. These squads are in charge of a supervisor, generally a skilled mechanic, who sets up the machines, grinds or supplies the cutting tools required, and keeps an eye on the work being done. The supervisors are, in turn, under the charge of a shop-foreman who is responsible for the organisation of production and output. In shell factories the status of the "foreman" is more nearly that of a "charge hand," in engineering workshops. There is also a forewoman, superintendent or "mistress" as she is variously styled, who is solely concerned with the discipline, comfort and welfare of the women. Sometimes she is a voluntary worker, but is usually engaged and paid by the employer in the ordinary way. A woman's Trade Union official suggested that these superintendents might be trained as supervisors and take charge of the machines, in order to relieve the men for other work.

(ii.) *Setting up of Machines and Tool-grinding.*—Generally, not one of the women grinds her own cutting-tools or sets up her machine. A few cases came under observation of women who set up their machines and even ground their tools, rather than stand idle, waiting for these things being done for them. Why a sufficient stock of tools was not kept ready was not explained. In one National Factory, the women are allowed to grind their tools where exactness in shape is not required, *e.g.*, "parting-off" tools and roughing tools. In a number of shops women are grinding tools in machines, supervised by men.

(iii.) *Flying Squads.*—In one factory turning out 4.5 in. shells, there are six women, each of them trained to all the operations on the shells. If any machine is vacant owing to the absence of a woman from any cause, one of this "flying squad" fills her place. They are paid 30s. time wages, receiving piece-rates when working the machines. In another factory a similar system is at work, there being 12 women to every 11 machines.

(iv.) *Inspection.*—In the shell factories there are women inspectors or viewers, who gauge the work as it leaves the machines. The objects of this are (1) to discover and correct errors, if possible,

before they affect succeeding operations, or (2) if the fault is irremediable, to have the job " scrapped " without wasting further time on it. Some complaints were made that a number of inspectors have no experience of the machines and therefore often fail to detect the true source of the error : the result being that the wrong person is blamed.

(v.) *Labouring.*—Light labouring is done largely by women who sweep floors, lift shells in and out of machines, and, in some cases, remove the metal cuttings. The removal and delivery of shells in quantities is usually done by men, but in one factory women do this by means of a patent bogey. This is a light iron collapsible frame work, on wheels, which goes under a platform on the floor, on which the shells are piled from the machines : a lever moves the frame so as to lift the platform clear of the floor and resting on the wheels. As was pointed out in Section 1 (*b*) of the Report, a large proportion of women in general engineering are doing labouring work.

(vi.) *Promotion.*—The opportunities for promotion are not many, and the women machine-workers as a whole do not desire it, as it usually entails financial loss. The time-wages paid to inspectors, superintendents, &c., are much lower than the average earnings on piece-work at the machines, and even than the time-rates paid to women under the dilution-schemes, who, after the training period, receive the men's rates.

(vii.) *Comparison with pre-War Organisation.*—The shop-organisation outlined above is in important respects very different from that which prevailed in the engineering industry prior to the war, and which still prevails so far as men are concerned. The individual engineer—skilled and semi-skilled—is, as a rule, directly responsible to his foreman for work done, and this is especially true of turners and machine-workers , these also set up their own machines and grind their own tools, with a very few exceptions among semi-skilled men. Even where there are squads of fitters under " charge hands," it is owing to the nature of the work making it much more convenient, and is in no way due to the inability of the individual workers to do any part of it without supervision ; in fact, supervision in the sense used with regard to women, does not exist.

(*c*) *Machinery.*

It will be obvious that, since the increase in the number of workers in the industry, men and women, excluding labourers, is about 6,000, and the majority of these are machine workers, there must have been a large addition to fixed capital in the shape of machine-tools and buildings. Almost the whole of the machinery imported into the district since the war began is of a highly-automatic type for the production of shells. It is commonly assumed that this type was brought in because of the class of labour—unskilled women—which was to work it. This is very questionable. Probably a much stronger factor was, or would

have been, the necessity of producing large quantities of a highly standardised article in the minimum of time. The addition to the plant employed in general engineering work has been practically nil.

(d) Conclusions with regard to Post-War Position.

While it is true that the processes at present being done by women are identical with those done by men in comparatively few cases, all of them are more or less similar. They fall—most of them—under the category of semi-skilled work. The introduction of a large number of highly automatic machines into a district where, prior to the war, there was but a small proportion, and the presence of a large number of women trained to work them, may have very far-reaching effects on the character of the engineering trade ; it will be more convenient to deal with the possibilities in the general conclusion to the report. In general engineering " dilution " has been so recent and limited in extent that the data available is only sufficient to justify very tentative conclusions. (i.) Women are doing semi-skilled work, such as drilling, tapping and screwing, much as men did it and doing it well. (ii.) In the case of skilled work there has been a sub-division of operations in most instances, and the Minister of Munitions has stated that where this is the case, the women are not doing the skilled men's work. The outstanding facts are, that there will exist at the end of the war, large plants of high grade automatic machinery with women trained to operate them, and a smaller but appreciable number of women trained to the simpler processes of general engineering.

NOTE.—*Women are now (August, 1917) employed on 15 in. shells and howitzer guns. In a new shop it is proposed to make 6 in. guns entirely by women labour.*

3.—Hours.

The customary hours of work in the Clyde engineering industry are 54 hours per week, made up as follows :—Week-days : 6 a.m. to 5.30 p.m. Saturdays, 6 a.m. to 12 noon ; ¾ of an hour being allowed for breakfast and one hour for dinner. On night shift 62½ hours per week are paid for, including meal-hours. There are five shifts beginning at 5.30 p.m. and ending at 6 a.m., with two intervals of 30 minutes for meals at 9.30 p.m. and 1 a.m.

The women in the engineering establishments usually have the same hours as the men, but in a number of cases are allowed to knock off work five minutes before stopping times to remove their overalls and be clear of the gate before the men are released. In the shell-factories the prevailing hours are 6 a.m. to 6 p.m., with two meal hours totalling 1¾ to 2 hours on week-days, and 6 to 12 on Saturdays, or 56 hours per week. There is a night-shift in most of the factories with five shifts of twelve hours (6-6)

each, a total of 60 hours ; the meal-hours are usually 45 minutes each and there is a rest time of fifteen minutes at about 4 a.m. In one factory " lady volunteers " work at the week-end, in a number of others the regular women-workers work alternate week-ends as overtime.

4.—Wages.

(*a*) *Minimum Rates.*—The standard Minimum Rates of Wages for men in the district are, (i.) for skilled men, 9½d. per hour ; (ii.) for semi-skilled men, 7½d. per hour, or 42s. 9d. and 33s. 9d. per week of 54 hours, respectively. The minimum rates of wages to be paid to women doing work customarily done by men have been laid down in a Circular Letter (L.2) by the Munitions Labour Supply Committee and issued as Recommendations by the Ministry of Munitions towards the end of 1915. The Amalgamated Society of Engineers made it a condition of the dilution of labour in controlled engineering shops that L.2 would be binding on the employers, in any such establishment immediately " dilution " was introduced. When it became necessary to draft an Amending Bill to the Munitions of War Act, 1915, the A.S.E. and the National Federation of Women Workers insisted that the minimum rates of wages stated in the document should become binding by statute. The A.S.E. went so far as to decide at a National Conference that unless this were done their members would refuse to co-operate in putting dilution of labour into operation. Ultimately the Munitions of War (Amendment) Act, 1916 (February) gave the Minister of Munitions power to give directions as to rates of wages, &c., for women employed on munition work, and this was immediately followed by the issue of a direction that L.2 was to govern wages and conditions of labour for women in engineering workshops and shell-factories. Briefly it provides that (i.) women over 18 years of age shall be rated on time at £1 per week, reckoned on the usual working hours of the district for men in engineering establishments ; with a reservation that where the work was previously done by a fully skilled tradesman the said tradesman's time-rates shall be paid. (ii.) Where time is lost through break-down, air-raid, or other cause beyond the workers' control, the women being retained in the shop, the rate shall be 15s. for such time. (iii.) Piece-prices and premium-bonus rates shall be the same as are customarily paid to men for the job. (iv.) Night shift, overtime, Sunday and holiday allowances shall be paid on the same conditions as in the case of men.

(*b*) *Time Rates.*—The prevailing time-rate paid in the Clyde district in shell-factories, is £1 per week of 54 hours. In a few cases the hours are less than the recognised number, and in one such case at least the weekly wage is correspondingly less, in other cases the £1 is paid irrespective of the reduced hours. In the engineering workshops women working under the schemes for dilution of labour get £1 at starting, while various agreements

have been come to between the employers and the men's representatives as to the increases to be given during a fixed training period and the rate payable at the end thereof. The question of the interpretation of L.2, Clause 1, as to probationary periods and ultimate time-rates for women doing " semi-skilled " and " skilled " men's work, is at present (July 30th, 1916) the subject of an inquiry by the National Tribunal on Women's Wages set up by the Minister of Munitions to advise him regarding the issuing of Orders under the Munitions of War (Amendment) Act, 1916, Section 6. The Glasgow District Committee of the A.S.E. have referred to the Tribunal the following proposals :—(1) Women doing semi-skilled men's work : start at 20s. per week rising to full district rate of 33s. 9d. at the end of two months. (2) Women doing skilled men's work : start at 20s. per week, at the end of fifth week to receive 25s. thence rising by equal instalments to full district rate of 42s. 9d. at the end of the thirteenth week.

(*c*) *Allowances.*—The byelaws for the district, agreed to by the Glasgow District Committee of the A.S.E. and the North-Western Engineering Employers' Association, provide that (i.) all overtime worked after 54 hours in the pay-week shall be paid for at the rate of time-and-half ; (ii.) time worked during specified holiday periods shall be paid for at that rate also ; (iii.) for time worked between midnight on Saturday and midnight on Sunday the rate shall be double-time ; (iv.) an allowance of 1s. per night shall be made on night-shift. All these allowances are being paid to women, but it is important to note that the great difference in the time-rates of men and women affects materially one of the principles on which the remuneration of women, as laid down in L.2, was based, viz., that a " system of payment by results " should give " equal pay for equal work." Where women are receiving the same piece-prices as men, and the output is equal, whenever overtime, Sundays, or holidays are worked, the total payments for the work done are *not* equal, since the women's extra allowances will only be about half that of the men's for similar periods. The reduction in time-rates of 25 per cent. where enforced idleness in the works takes place, is also a breach in the men's customs, whose full-rate is maintained in all circumstances.

(*d*) *Piece-Rates.*—Whether piece-work prices paid to women are the same as would be paid to men for the same jobs is difficult to determine, as nearly all of the work is new, either in the nature of the article manufactured or in the method of doing it. There is little, if any, piece-work being worked by women under the dilution schemes, but in the opinion of the men themselves the prices paid for work on shells are not as high as they would demand or get. There are several instances of shells being originally turned by men and then transferred to women and the price " broken." One instance of a peculiar kind may be given. A certain firm of engineers made an endeavour, prior to the war, to alter their system of piece-work, by substituting for the money-

price the number of hours at the time-rate of the man then doing the job, *e.g.*, price of job 1s. 6d., time-rate (prior to war) 9d. per hour, new value of job: 2 hours. The firm argued that they were maintaining the piece-work system and merely expressing the value in hourly wages, the value of the time allowed to be paid irrespective of the actual time taken, the man's minimum time-rate, of course, always being guaranteed. The men, however, resisted the proposal successfully, but the firm have continued to put on the piece-work "lines" issued with each job, the number of hours at the time-rate of the workman, equal to the price of the job. After the war began the making of shells was started in the works, and the men manned the machines at first, working on piece-work with the usual doubly-expressed price on their lines; later the men were substituted by women, but on *their* lines only the time was stated and the actual value of the job to them was calculated on *their* time-rate, which was about half that of the men, *e.g.*, given an operation for which the men's price was 10d.—1 hour at 10d. per hour, then the women got 1 hour at, say, 5d. for the same job. The employer's argument appears to be that they are giving the women the same *time* as the men. If the above is a true statement of the case, and the writer heard three of the men bearing witness to it, then one of the conditions of L.2 has been flagrantly broken. In other cases however, the men have admitted that the price they received was abnormally large, and, on the whole, while, as said above, the men agree that the women are not receiving the same piece-prices as they would get, still these prices appear to be fairly satisfactory.

(*e*) *Bonus Systems.*—Premium Bonus systems are in operation in a number of engineering shops in the district, and there may be a few women employed there working on one or other of these. But none of the shell-factories appear to work on P.B. There are, however, one or two such factories where a bonus on output, usually of 5s., is paid in addition to the piece-prices for definite quantities. There are at least three different methods of paying this bonus: (i.) it is given to the woman who performs the greatest number of a given operation in one shift during the week. (A case came under observation where this was won, after several vain attempts, on an output of 132 shells rough-turned, where 100 was the average); (ii.) the bonus is paid for the largest output by an individual worker of a certain operation in any week (*e.g.*, one woman gained the 5s. by fine-boring 303 shells in a week where the average production is about 240); (iii.) it is given to all the women in the factory when the total weekly output exceeds a certain figure. In the case of one firm the last method was adopted in an attempt to a partial evasion of the obligation to pay a £1 minimum, as the ordinary rate of the factory was 15s. and the bonus was introduced when the women were demanding the rate laid down in L.2—then only a recommendation. It was continued along with the 15s. for a considerable time after the Munitions of War (Amendment) Act, 1916, came into operation.

It is not known whether the bonus is still offered, but the £1 time-rate is now being paid. In one factory this bonus varies with the total output.

(*f*) *Earnings.*—(i.) Actual earnings in munition-factories are very difficult to estimate, as piece-work is in extensive operation and the amounts vary, sometimes greatly, with the individual workers. It is certain that, *as women's wages go*, they are high, in a number of cases very high. They range from the minimum of £1 to £4 and £5. From workers in a factory making 4.5 in. shells, 17 detailed pay lines, covering various weeks in March, April, May and June, were secured. They stated the output per shift, the price per quantity-unit, and the earnings for four different operations, fairly equally represented. The amounts arranged in ascending order were :—

I.—Individual Weekly Earnings.

1.—22/8½	10.—36/1½	
2.—23/7	11.—38/3½	Note.—The night shift allowance of 5s. per week is included in some of these amounts. Others are made up, partly of time-earnings and partly of piece-work earnings.
3.—24/9	12.—38/5	
4.—25/8	13.—38/10	
5.—26/6½	14.—40/2½	
6.—27/11	15.—43/3½	
7.—29/-	16.—43/11½	
8.—30/7¾	17.—47/6¾	
9.—32/1		

II.—Frequency Table.

N.E. 20/- and 25/-	N.E. 25/- and 30/-	N.E. 30/- and 35/-	N.E. 35/- and 40/-
3	4	2	4

Over 40/-

4

III.—Average Weekly Earnings = 33/4½.

These figures are for such a small number as to be worthless in themselves, as giving anything like an average for all the women workers in shell-factories in the district ; but it so happens that they agree remarkably with data, covering a very much larger number, got from about a dozen representative firms, which the writer has had an opportunity of seeing, but which are not available for this report. The average over the district may be taken, very roughly, as between 30s. and 35s. per week. A striking feature of the details in the pay-lines showing the higher total weekly earnings, was a very considerable variation in the earnings per shift of equal hours by individual women. A significant fact brought out in interviews with women workers in shell-factories is that they never think of wages in terms of time-rates. The bulk of them knew little and seemed to care less of what their time-rate was, how to calculate it, or of its influence.

(ii.) The earnings of women employed in general engineering are still more difficult to estimate than those dealt with above. In the great majority of cases the training period is still running and the wages are increasing from week to week or at longer

intervals. The starting rate of 20s. is general for both skilled and semi-skilled work. The agreements come to in the various establishments as to the rate and period of this increase, and the final rate at the end of training, vary considerably, and in the absence of detailed figures from the employers' pay-sheets, any estimate would be merely a guess. In one establishment women are earning 44s. 6d. per week at time-rates on skilled men's work. This however is meantime exceptional.

(*f*) *Comparison with pre-War Earnings.*—The average earnings in either class of women workers, and especially those engaged in shell-machining are certainly much higher than those got by them in the industries in which they were employed prior to the war. There are exceptions to this of course, but it may be safely taken that the great majority of the women earned between 15s. and 20s. before beginning munition work.

(*g*) *Conclusion.*—On the whole it may be said that never have women's wages come so near to being equal to that of men in the same industry, as is at present the case in engineering. On the other hand they are being earned on a quite different basis. To the skilled engineer his standard time-rate is everything. Even when employed regularly on piece-work or premium bonus his prices and time-limits are fixed on the basis of that rate, so as to yield a certain percentage above it—usually about 25. It has been with great reluctance that here and there he has from time to time accepted any other than a time-wage system. But to the women the time-rate is negligible and piece-work is all that they think of. In many of the industries which they have left, there is no such thing as a time-rate, and to reject the former in favour of the latter, as the male engineer has done repeatedly, would be to them unthinkable. L.2 was, obviously, drawn up with this fact dominating the minds of its authors. Whether the prospective increase in the employment of women under the schemes of dilution of labour will modify this attitude is uncertain—it should tend that way.

NOTE.—*In the twelve months since the above was written the wages of men and women have been increased considerably, viz.:— Men* 10½*d. per hour,* + 8*s. per week. Women* 29*s* 6*d. per week. Women's piecework earnings average about* £3 *per week on shell-work. L.2 has been amended so that women doing* part *of a skilled man's work receive the skilled man's rate in twelve weeks, rising from the above minimum by instalments.*

5.—Efficiency of Labour.

For reasons which have been already set forth, no comparison of any value can be made of the output of men and of women. It is admitted on every hand that the latter have been a decided success at making shells. Mr. David Kirkwood, late convener of shop stewards at Parkhead Forge, has always spoken in the most enthusiastic terms of the energy and good work put into the

making of shells by the women in these works. The percentage of spoiled work is at present very low, which is all the more remarkable in view of the speed at which the women work under the inducement of high piece-work earnings, and in some instances, bonuses on output, in addition. An outstanding feature in the women's work is the way in which they stand the monotony of turning out large quantities of the same articles done in exactly the same way, in a few minutes each. Whether this is due to the comparative novelty of the work, the excitement of making high wages, past-training, or some inherent psychological difference with men, it is not possible to say. As was to be expected, nothing like the same thing can be said of the women at general engineering, except as regards very simple operations. The last qualification is merely a statement of the obvious. Operations which require the skill of a man trained in a five years' apprenticeship at least, cannot be efficiently done by a woman with less than five months' training, even where, as is commonly the case, she is confined to one or two processes during that period. Generally it appears that with regard to application and regularity women have proved superior to men, especially in the former quality; with regard to accuracy about equal to men; and with regard to initiative and adaptability inferior. But there appears to be no reason to suppose that given the same training, and within certain physical limits, women would not reach to the same efficiency as men.

6.—Health.

The conditions under which the women are working are probably at least as good, in many cases better, than those prevailing in the industries in which they were employed prior to the war.

(*a*) *Hygienic and Sanitary Conditions.*—In the modern engineering workshop cleanliness, ventilation, light and space are very much above the requirements of Factory Act regulations. On the other hand, the prevalence of corrugated iron and glass roofs in the construction of buildings render the interiors very hot in summer and cold in winter, but in most cases artificial means are adopted to counteract the effects on the temperature. There is little or nothing of the stuffiness of the usual textile factory and workroom. In the general engineering shops the women have been given much better sanitary arrangements than the men. This is due partly to a touch of chivalry in a management without the familiarity with women-workers which seems so often to breed the proverbial contempt, and partly to the comparatively small number of workers to be accommodated. Washing facilities, cloak-rooms, dining-rooms with cooking-stoves are commonly supplied.

(*b*) *Physical Strain.*—The work in the shell-factories is in a number of cases heavy, and only the strongest women can undertake it. It has already been pointed out that even on the lighter

shell-work there is a considerable amount of manual labour involved in the oft-repeated lifting of jobs out of and into the machines. To lift 32 lbs. weight down and up 100 times, through a distance of about 3 ft. from the floor with only a few minutes between each double operation, and from 6 a.m. to 6 p.m. with two intervals of an hour each, requires a physical capacity of which not many town-bred under-fed and factory-bred women are possessed. An even greater strain is entailed in having to lean over the machine with the weight in order to place it in the chuck or between the centres or to remove it from there. Among the women selected for this class of work an appreciable number have to ask for a change to lighter work after a period. The bonus on output to individual workers is an unqualified evil from the point of view of health. One woman admitted that after winning such a bonus of 5s. for an output of 32 per cent. in excess of her average, she had to go to bed and was off work for a fortnight. Several workers on much lighter types of shell than the above complained that unless they went to bed so early as to debar them from any social pleasure in the evenings, they felt tired on rising again in the morning. On heavier shells, *e.g.*, weighing 45 to 50 lbs., women labourers help the machine-worker with the lifting. 6 in. H.E. and 8 in. H.E. projectiles weighing 94 and 200 lbs. respectively, are lifted by mechanical means. In one national factory 6 in. H.E. shells are lifted by a block and chain tackle with a broad hook into which the body of the shell is placed.

(*c*) *Liability to Accidents.*—There does not appear to be any greater liability to accidents among women workers than among men. In using the hook arrangements mentioned above there have been a number of cases of crushed feet owing to carelessness in seeing that the weight was properly balanced in the hook before lifting clear of the floor or machine, but generally every care has been taken to avoid the possibility of accident. In a locomotive works the main passage from which the women enter their cloak-room, &c., is also a railway for wagons bringing material into the workshop; since the coming of the women, strict orders have been issued that the passage from their place of work to the rooms must be kept clear at all times during the day, and that nothing must be allowed to project into the passage. Loading and unloading takes place at night when no women are in the works, when material has to be moved during the day it is conveyed on hand-pushed bogeys until clear of this section of the passage way.

(*d*) *Night Work and Excessive Overtime.*—No one, from the Government Committee on Fatigue to the workers themselves has anything but condemnation of night-work and excessive overtime from a health point of view. Night-work still goes on in alternate spells of a fortnight. One National Projectile Factory has adopted a monthly alteration. The management of this factory recently tried to work the women on seven full day shifts per week, and on night shifts with a break of one in seven. A brief trial showed

that the output was reduced, the bonus allowed falling correspondingly, and the alternate week-end was re-introduced. The three shift system would be much better if the supply of labour permitted its adoption, and the opposition of the women on the ground of a probable reduction in wages were overcome.

(*e*) *General Conclusions.*—There is no evidence so far of any exceptionally injurious effects of the work on the health of the women introduced into the engineering industry except in the cases of night-work and excessive overtime. But it has to be kept in view, that up to the present, a more or less effective attempt at selection has been made which, if the demand for labour grows, will correspondingly fail. There is also the fact that the high wages earned enable the women to buy better food and more of it than before, and that they have exceptional facilities for getting it in the shape of munition canteens. A more speculative element is the stimulus due to the novelty of the work and the feeling of being engaged in "helping on the war." In addition to the ordinary factory inspection the presence in every shell factory and in most engineering workshops o welfare-workers—either voluntary or paid—ensures a very high degree of protection as compared with that possible in the ordinary hives of industry of peace times. All of these special precautions, stimuli and protective elements, are due to the abnormal circumstances. Whether they will end with the circumstances will be the subject of a few remarks in the concluding section of the Report.

7.—Trade Union Organisation.

(*a*) *Extent.*—(i.) None of the Trade Unions can give exact figures as to the relative numbers of men organised and unorganised in the industry. The data is as follows: (*a*) Estimated number of skilled and semi-skilled men in the Clyde District, excluding Paisley and Johnstone, 23,000; (*b*) the A.S.E. Shop Steward returns to the Glasgow District Committee of the Society for the April-June quarter of 1916 gave (1) numbers of A.S.E., 11,009; (2) members of other Societies, 1,742; (3) non-unionists, 1,283; (*c*) according to the A.S.E. Monthly Report for June, 1916, there were in the 56 Branches represented in the Glasgow District Committee—whose area is co-extensive with the Clyde District as defined in this report excluding Paisley and Johnstone—15,567 members in that Society. The Shop Stewards' returns show a Trade Union membership of 12,751 out of a total in the shops dealt with of 14,034, or just under 91 per cent. It is not likely that the same proportion will hold in the shops for which no returns were got, and the actual figure may be anything between 85 and 90 per cent. For the purposes of collective bargaining the percentage given in the stewards' returns will be effective, as it will fairly represent the position in the workshops whose owners are members of the Employers' Association.

(ii.) The position with regard to women can only be equally approximate. There are four unions with members among the women presently employed in the industry, viz., The National Federation of Women Workers, the Workers' Union, the Gas and General Workers' Union, and the National Amalgamated Union of Labour. The first of these alone gave any figures, but it may be given as a rough approximation that among them they have between 3,000 and 4,000 women munition workers. How many of these are in shell-factories and engineering workshops it is again impossible to say with any great degree of accuracy, since the Unions make no distinciton of industry or grade. It is probably rather less than 3,000, and allowing for labourers, shell-varnishers, &c., under 2,500. Nearly all of these are attached to the National Federation of Women Workers, whose membership is confined to women: the others are mixed unions from the point of view of sex, they started later than the N.F.W.W. and the few members they have secured are mainly among women employed at making and handling explosives, and at core-making in iron foundries. All but the Workers' Union are affiliated to the Engineering and Shipbuilding Federation of Trades, &c., and all of them to the Glasgow Trades' Council, but there is no agreement in order to avoid overlapping; on the contrary, the competition for the women between all but the National Amalgamated Union of Labour is keen not to say suicidal. Thus out of something like 6,000 women doing work similar to the men only 2,500 or, say, 40 per cent., are organised—it may actually be not more than 33.3 per cent., and the effectiveness of Trade Union organisation weakens in much more than an arithmetic ratio to its weakness in numbers in any industry.

(*b*) *Attitude to the Organisation of Women.*—When the question of organising the women coming into engineering for war purposes, was first raised, the Amalgamated Society of Engineers decided, that as their presence there would be only temporary, it would not take the women into membership, but pledged its support both at headquarters and in the districts to the National Federation of Women Workers in any efforts it might take to organise the new comers. Among the reasons for this selection there probably were (1) the competition of the A.S.E. with the other mixed unions for the semi-skilled workers in the trade, and (2) that by the custom of the N.F.W.W., if women should become permanently attached to the trade and the A.S.E. decided to take them in, the members of the Federation would be handed over at once to the men's union. The local officials of the A.S.E. have freely given their advice and urged their members in the shops to help inside. But the former have been so overwhelmed with the extra work laid on them in watching the interests of their members under the Munitions of War Acts, 1915 and 1916, regulations of the Minister of Munitions under these, Military Service Acts, and Dilution of Labour schemes, that it has not been possible for them to make up for much of the inherent weakness in the internal

organisation of the N.F.W.W. The men in the shops have also been handicapped by the fact that the shell-factories are, even when managed by the same firm, usually distinct from the ordinary engineering workshops. The contrast between the power of the men's and the weakness of the women's organisations has led the women in many instances to lean more on the former than on the latter, where contact between the sexes was easy.

The difficulties of organising women in industry are notorious. Their weakness in the economic, social and political spheres; narrowed outlook; temporary nature of their industrial life—real and imaginary; inability to pay for efficient organisation; difficulty of training voluntary workers to officer the branches; all form a circle which is exceedingly difficult to break at any point, and when broken is always closing up again before the straightening-out process has gained sufficient momentum to overcome the reaction of any weakening circumstance. An additional difficulty due to the present circumstances, is the idea among the more emotionally patriotic, *e.g.*, soldiers' wives, that Trade Unionism means restriction of output.

The organisation inside the engineering workshops and shell-factories has also revealed new problems, which can best be stated in the words of one of the women's Trade Union organisers. "Women learn very slowly the fact that their union is inside and does not consist of an organiser outside. They undertake no duties of shop stewards, &c., seldom interview the firm or manager, but call in an organiser in every difficulty. To get women to take up these duties with any enthusiasm, they must go through a strike and lose their fear; it is really essential for their organisation. Now without having been taught the unity of a strike, they are thrown into work with firms accustomed, as a rule, to deal with their workmen through the shop stewards in the first instance. A demand, which has been made by several firms, that the women shall conform to the men's system makes too big a draft on the courage and common trust of women so recently organised. On the one hand they are very conscious of want of unity, and fear victimization if they approach the firm directly—on the other they are continually hearing the advice of the A.S.E. shop stewards and men, particularly the revolutionary-minded among them, since these are they who, as a rule, concern themselves with the women's organisation. These revolutionary doctrines are being super-imposed on the women's minds—but they still keep their old fear and distrust in below." "It is as though the men were persuading them to run before they quite see reasons for creeping." It may be added that this latter view, expressed some eight or nine months ago, has been since then strikingly illustrated at Parkhead Forge, where what was the most fully organised and most vigorous body of women shell-workers in the district, looking on the Parkhead fire-brands as heroes, collapsed during the disastrous March strike and only a few remain faithful to their union and to the idols of the early days.

Among the men, active Trade Unionists are fully alive to the advantages of the women being organised, preferably in the men's union, but since that is impossible, then in the other. If the women ever become a permanency in the trade then there is a strong probability of their being taken over by the men.

8.—Trade Union Opinion on the Main Question.

(*a*) *Relaxation of Trade Union Rules and their Restoration after the War.*—The withdrawal of all Trade Union restrictions and especially those against the introduction of unskilled male and female labour into the engineering trade, was only accepted by the engineers' unions under the urgent plea of national necessity and on the strongest possible guarantees that it would only last for the period of the war.

These guarantees were first given in black and white in the Treasury Agreement of 25th March, 1915, arrived at between the Government representatives on the one hand, and the Trade Union representatives on the other. It consisted of a recommendation from the Executive Councils of the various unions to their members to forego all their rules and customs which would in any way tend to hinder the production of war material or its transport under guarantees to the above effect. In a few months these recommendations and guarantees were made " the law of the land " in the Munitions of War Act, 1915. So strong was the passive, and in some degree active opposition to this Act that at the end of last year the Minister of Munitions visited the Tyne and Clyde Districts in order to " persuade " the Trade Unionists and especially the engineers, to accept, and co-operate heartily in putting into operation, what was now called dilution of labour. His reception on the Clyde was not promising to say the least. The men's contention was that they were not, in the circumstances, opposed to dilution, but the guarantees and safeguards against its post-war persistence were worthless without certain conditions as to the payment of standard rates of wages, &c., and these Mr. Lloyd George did not so much as mention. However, early in 1916 a Commission to effect Dilution of Labour was sent by the Government to the Clyde District and has remained there since. The Commissioners have taken the A.S.E. into its confidence from the beginning and carried its representatives with them at every step, if not with enthusiasm, at least with consent. Recently they have extended their operations to the Boilermakers, Shipwrights and Coppersmiths. The procedure gone through in drawing up a scheme for the dilution of labour in an engineering shop may be illustrated by a typical case. After a visit to the works in question and consultation with the management, the Commission drafts a scheme setting forth the classes of labour to be diluted, numbers affected, nature of the diluting element and wages to be paid to the incomers. A joint conference takes place between the

Commissioners, the employers' representatives, and th shop stewards representing the men. The scheme is explained by the first-mentioned, and a few days' grace is given during which the men can consider it, and if they have any objections, another discussion takes place between the Commissioners and the shop stewards. If necessary the employers are called in also. When all parties are satisfied, or if that is found impossible, the Commissioners have as arbiters decided the questions at issue, the scheme is signed by the Chairman of the Commission and is binding on both employers and workers. The possibility of a deadlock is reduced to a minimum by an agreement come to between the Glasgow District Committee of the A.S.E. and the Commission under which all schemes include among others the following provisions: (i.) A record of all changes made in the customs and practices since the war shall be kept and a copy thereof placed in the local Labour Exchange for reference. It may be added that the Commission have recently been given an Official Recorder who is visiting the firms and, in the presence of the management and the convener of shop stewards, satisfying himself that this provision is being carried out, a list being kept by the employers, a copy handed to the convener for verification, and then sent to the Ministry of Munitions, who in turn lodges a copy at the Labour Exchange. (ii.) No proposed change shall be made in the scheme until the men or their representatives have had full opportunity for discussion with the management. (iii.) Every skilled and semi-skilled man in the employment of the firm prior to the war shall, if desired, receive a certificate from the firm to that effect. (iv.) To ensure that the scheme will be properly carried out a shop committee of the men shall be set up to confer with management on any point of dispute; if after discussion no decision is arrived at then the question must be remitted for arbitration.

The final safeguard is that compulsory arbitration by the Board of Trade will be a final court of appeal open to the men for twelve months after the war ends. (Munitions of War Act, 1915, Sect. 20 (2).)

Despite these guarantees and the provisions for carrying them out, Trade Unionists, and especially the rank and file, do not believe that their pre-war position is not undermined. It is true that employers have had to be compelled against their will by the Commission to introduce women, and also that in a number of cases, they have told the women on engagement that it must be understood their employment ended with the war. But once the trouble of training the women is got over and experience of managing them been got, if they can be economically used in producing certain classes of work, then, even if they are put out at the end of the war, they will be introduced again at the first favourable opportunity; when the twelve months period has ended during which the men can appeal to the Board of Trade the

old struggle against the encroachment of the semi-skilled man on to the skilled man's area of employment will be resumed, with the skilled and semi-skilled men's forces weakened by the presence of a large reserve of male and, worse still, of female labour ready to step into any breach made in their ranks, with interests, to begin with at least, in common with their masters. A section of the men would not object to women remaining in the industry provided that the standard rate is maintained, and economic competition is free.

At the same time, since either men or women must come in for the present, the latter are preferable to the organised men, since the sex line of demarcation is clearly defined, unlike that between classes of men. On the other hand, if the new labour is to be a permanency then men would be desired as their economic strength is greater than women's, and their attitude to Trade Unionism much more favourable.

The women themselves are convinced that they will have to go, but it will be much against their will. Not only are their earnings much higher than those earned by them prior to the war, but to most of them the work itself appears to be more attractive than that they were employed at formerly.

9.—Conclusion.

The question of whether women will remain in the engineering industry after the present abnormal position is ended, is interesting in the extreme, but the answer depends on so many speculative factors that it is doubtful if more can be done here than set out these factors as briefly as possible.

(*a*) (i.) It will be obvious that almost everything will depend on how far the conditions set up by the present circumstances continue with the end of the war. In other words will the demand for labour be abnormal or descend to the pre-war level at best ? If the former holds, then the women are very unlikely to go, and if once they consolidate their position in ordinary mercantile production their grip would be difficult to unloose. Against that is the fact that the typical industries of the district do not make or have not hitherto made any great demand on automatic machinery, and the processes these machines are designed for ; and in spite of the extension of the principle of standardisation in the engineering industry this appears to be a formidable obstacle. In favour of the possibility of continued prosperity may be advanced the fact that the European demand for engineering products will be largely for ships, railway material (including locomotives and rolling stock), and structural work of all kinds, all of which are largely produced in the Clyde Valley.

(ii.) How far the supply of labour will be affected by war casualties is, of course, unknown, but if the figure given of the number enlisted in the District is approximately correct, this factor cannot be, at least directly, an important one in this industry.

(iii.) The large amount of new fixed capital—plant and buildings—will have to be disposed of in some way. The most effective use of it would be to bring in new industries for which it is suited. Whether that is economically possible must remain without discussion here. If it can be done, then the women who made it productive would have a strong claim to continue doing so.

(*b*) A considerable number of the women will probably return to their homes when their men-folk come back from the war ; but on the other hannd, war casualties will leave another considerable number without that inducement : on the contrary, they will have every reason, financial and otherwise, to remain if possible.

(*c*) The economic effect on other trades of a more or less sudden return to normal conditions, is almost impossible to foretell. If there is a revival of trade, then to that extent will the tendency to remain in the war trade be lessened. A good deal will also depend on the ability of these trades to pay wages and give conditions approximating to those the women have experienced in munition work. There is a strongly held opinion among women Trade Unionists that only under extreme compulsion will the war-work women go back to the pre-war wages and conditions. Against this has to be put the view that, once the provisions of the Munitions of War Acts, 1915 and 1916, cease to operate, and the employers are free to take advantage of the lack of organisation among the women, wages in the engineering trade will tend to fall ; the ultimate result of this up-pull and down-pull tending to equalise women's wages in all industries affected. The better factory conditions are more likely to be maintained, and in the case of other industries levelled up, than otherwise.

(*d*) So far as the effects on health affect this question, the only result of the enquiry is to show that there are limitations on the employment of women (i.) on heavy work, and (ii.) on night work.

(Sgd.) HERBERT E. R. HIGHTON.

July, 1916.

Appendix II.

STATUTORY ORDERS.

(1) CIRCULAR L.2 (February, 1916).

DIRECTIONS RELATING TO THE EMPLOYMENT AND REMUNERATION OF WOMEN ON MUNITION WORK OF A CLASS WHICH PRIOR TO THE WAR WAS NOT RECOGNISED AS WOMEN'S WORK IN DISTRICTS WHERE SUCH WORK WAS CUSTOMARILY CARRIED ON.

(NOTE.—*These Directions are on the basis of the setting up of the Machines being otherwise provided for. They are strictly confined to the War period and are subject to the observance of the provisions of Schedule II. of the Munitions of War Act.*)

1. Women of 18 years of age and over employed on time, on work customarily done by men, shall be rated at £1 per week, reckoned on the usual working hours of the district in question for men in Engineering Establishments.

This, however, shall not apply in the case of women employed on work customarily done by fully-skilled tradesmen, in which case the women shall be paid the time rates of the tradesmen whose work they undertake. Overtime and night-shift and Sunday and holiday allowances payable to men shall also be made to women.

2. Where women are prevented from working, owing to breakdown, air raid, or other cause beyond their control, they shall be paid for the time so lost at the rate of 15s. a week as above, unless they are sent home.

3. Women shall not be put on piece work or premium bonus systems until sufficiently qualified. The period of qualification on shell work shall not, in general case, exceed three to four weeks.

4. Where women are employed on piece work they shall be paid the same piece work prices as are customarily paid to men for the job.

5. Where women are engaged on premium bonus systems, the time allowed for a job shall be that customarily allowed to men for the same job, and the earnings of the women shall be calculated on the basis of the man's time rate.

6. Where the job in question has not hitherto been done on piece work or premium bonus system in the establishment, the piece work price, or the time allowed, shall be based on a similar job previously done by men, on piece work or premium bonus system as the case may be.

7. Where in the establishment in question there are no data from previous operations to enable the parties to arrive at a piece work price or time to be allowed, the price or the time to be allowed shall be so adjusted that the women shall receive the same percentage over the time rate of the class of men customarily employed on the job, as such man would have received had he undertaken the job on piece work or premium bonus system as the case may be.

8. The principle upon which the directions proceed is that on systems of payment by results equal payment shall be made to women as to the men for an equal amount of work done.

9. Piece work prices and premium bonus basis times shall be fixed by mutual agreement between the employer and the woman or women who perform the work.

10. On piece work, every woman's time rate as per Clause 1 hereof, shall be guaranteed irrespectively of her piece work earnings. Debit balances shall not be carried forward beyond the usual weekly period of settlement.

11. On premium bonus systems, every woman's time rate as per Clause 1 hereof shall in all cases be paid.

12. Overtime and night shift and Sunday and holiday allowances shall be paid to women employed on piece work or premium bonus system on the same conditions as now prevail in the case of men in the district in question for time work.

13. Piece work prices and premium bonus time allowances, after they have been established shall not be altered unless the means or method of manufacture are changed.

14. All wages and balances shall be paid to women through the Office.

15. Any question which arises as to the interpretation of these directions shall be determined by the Minister of Munitions.

(2) ORDER 456 (July, 1916).

DIRECTIONS RELATING TO THE EMPLOYMENT AND REMUNERATION OF GIRLS UNDER 18 YEARS OF AGE ON MUNITION WORK OF A CLASS WHICH PRIOR TO THE WAR WAS CUSTOMARILY DONE BY MALE LABOUR OF 18 YEARS OF AGE AND OVER IN DISTRICTS WHERE SUCH WORK WAS CARRIED ON.

(NOTE.—*These directions are on the basis of the setting up of Machines being otherwise provided for. They are strictly confined to the war period and are subject to the observance of the provisions of Schedule II. of the Munitions of War Act.*)

(1) Where girls under 18 years of age are employed on work customarily done by male labour of 18 years of age and over the following rates shall be paid :—

(*a*) In the case of time-workers of—

17 and under 18 years, 18s.* per week reckoned on the usual working hours of the district in question for men in engineering establishments.

16 and under 17 years, 16s. Ditto.

Under 16 years, 14s. Ditto.

(*b*) In the case of piece-workers of—

17 and under 18 years.—The piece-work price paid or allowed for the work when customarily done by men, less 10 per cent.

16 and under 17 years Ditto less 20 per cent.

Under 16 years Ditto less 30 per cent.

(2) Where girls are prevented from working owing to breakdown, air raid, or other cause beyond their control, they shall be paid for the time so lost at the rate of three-fourths of their above time rates, unless they are sent home.

(3) Girls shall not be put on piece-work or premium bonus systems until sufficiently qualified. The period of qualification on shell work shall not, in general case, exceed three to four weeks.

(4) On piecework, each girl's time-rate shall be guaranteed irrespective of her piecework earnings. Debit balances shall not be carried forward beyond the usual weekly period of settlement.

(5) On premium bonus systems, each girl's time-rate shall in all cases be paid.

*The rate is raised to 20s., and the scale in proportion, after the April advance, 1917.

(6) Overtime and night shift and Sunday and holiday allowances shall be paid to girls employed on piecework or premium bonus systems on the same conditions as now prevail in the case of men in engineering establishments in the district in question for time-work.

(7) Piecework prices and premium bonus time allowances, after they have been established, shall not be altered unless the means or method of manufacture are changed.

(8) All wages and balances shall be paid to girls through the Office.

(9) The foregoing rates and conditions shall not operate to prejudice the position of any person who has better terms and conditions, nor prevent employers from recognising special ability or responsibility.

(10) Any question which arises as to the interpretation of these recommendations shall be determined by the Minister of Munitions.

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(3) ORDER 49 (January, 1917).

DIRECTIONS RELATING TO THE EMPLOYMENT AND REMUNERATION OF WOMEN OF 18 YEARS OF AGE OR OVER ON MUNITIONS WORK OF A CLASS WHICH PRIOR TO THE WAR WAS CUSTOMARILY DONE BY MEN OF 18 YEARS OF AGE OR OVER IN DISTRICTS WHERE SUCH WORK WAS CUSTOMARILY CARRIED ON.

(NOTE.—(1) *These directions are on the basis of the setting up of the machines being otherwise provided for.*

(2) *These directions are confined to the War period and are subject to the observance of the provisions of Schedule II. of the Munitions of War Act,* 1915.

(3) *Proposals under paragraph* 1 (*a*) (*ii*) *of these directions for advances to classes of women upon the time-rates prescribed by paragraph* (1 *a*) (*i*) *are proposals for changes in rates of wages within Section* 4 (2) *of the Munitions of War Act,* 1915, *and must accordingly be submitted to the Minister of Munitions for his sanction.*)

1.—(*a*) (i) Women employed on time on work customarily done by men shall, except as provided in paragraphs 1 (*a*) (ii) and 1 (*b*) be paid :—

Where the working week is 48 hours, £1.*

Where the working week is less than 48 hours, £1 for the working week and for additional hours, if any, worked up to 48.

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* The rate is raised to 24s. after the April advance, 1917.

Where the working week exceeds 48 hours, as follows :—

		£	s.	d.
For	49 hours	1	0	6
,,	50 ,, ...	1	1	0
,,	51 ,, ...	1	1	6
,,	52 ,, ...	1	2	0
,,	53 ,, ...	1	2	6
,,	54 ,, ...	1	3	0

(*a*) (ii) Women employed on time, (*a*) on work of a class customarily done by semi-skilled men, or (*b*) on work of a specially laborious or responsible nature, or (*c*) where special circumstances exist shall be paid according to the nature of the work and the ability of the women, but in no case less than the time-rates specified in paragraph 1 (*a*) (i).

(*a*) (iii) Overtime, night shift, Sunday and holiday allowances as customarily paid to men, shall be paid to the women to whom paragraphs 1 (*a*) (i) and 1 (*a*) (ii) refer. The basis for overtime shall be the working week for women in the establishment in question. For this purpose, the working week for women shall in no case be reckoned as less than 48 hours or more than 54 hours. The rate for overtime for women other than those referred to in paragraph 1 (*a*) (ii) and 1 (*b*) shall be computed on the basis of £1 for 48 hours.

(*b*) (i) Women employed on the work customarily done by fully-skilled tradesmen shall in all cases be paid as from commencement the time-rates of the tradesmen whose work they undertake.

(*b*) (ii) A woman shall be considered as not employed on the work customarily done by fully-skilled tradesmen, but a part or portion only thereof if she does not do the customary setting up, or when there is no setting up, if she requires skilled supervision to a degree beyond that customarily required by fully-skilled tradesmen undertaking the work in question.

(*b*) (iii) Women who undertake part or portion only of the work customarily done by fully-skilled tradesmen shall serve a probationary period of three months. The wages of such women for this period shall be reckoned as follows :—

They shall be rated for a period of four weeks at the time-rate of wages to which they are entitled under these directions when employed on time, and from that rate shall then rise from the beginning of the fifth week until the end of the thirteenth week by equal weekly increases to the district time-rate of the fully-skilled tradesman, and shall thereafter be rated at the district rate of the tradesman whose work they are in part or portion undertaking.

(*b*) (iv) In any case where it is established to the satisfaction of the Minister that additional cost is being incurred by extra setting up or skilled supervision due to the employment of women in place of fully-skilled tradesmen, the rates payable to women under these directions may, with the sanction of the Minister, be subject, for so long as such additional cost is incurred, to deductions not exceeding 10 per cent. to meet such additional cost: Provided that no women shall in any case be paid at lower rates than those prescribed by paragraph 1 (*a*) (i) of these directions.

(*b*) (v) No woman shall be called upon to serve more than one probationary period.

(*b*) (vi) Every woman who has served the probationary period shall receive from her employer a certificate to that effect.

(*b*) (vii) Any time immediately before the date on which these directions take effect during which a woman has been employed on part or portion of the work customarily done by fully-skilled tradesmen shall be reckoned in diminution or extinction as the case may be of the probationary period prescribed by these directions.

(*b*) (viii) The same overtime, night-shift, Sunday and holiday allowances shall be paid to women employed on the work customarily done by fully-skilled tradesmen or part or portion thereof as are customarily paid to the tradesmen. The basis for overtime for such women shall be on the working week for the tradesmen in the establishment in question. For this purpose the working week for such women shall be the same as that of the tradesmen.

2. Where women are prevented from working owing to breakdown, air raids, or other causes beyond their control, they shall be paid for the time so lost at three-fourths of their time-rate unless they are sent home.

3. Women shall not be put on piece-work or premium bonus system until sufficiently qualified. The period of qualification on shell work shall not exceed four weeks without the express sanction of the Minister of Munitions.

4. Where women are employed on piece-work they shall be paid the same piece-work prices as are customarily paid to men for the same job.

5. Where women are engaged on premium bonus systems, the time allowed for the job shall be that customarily allowed to men for the same job, and the earnings of the women shall be calculated on the basis of the man's time rate.

6. Where the job in question has not hitherto been done on piece-work or premium bonus system in the establishment in question, the piece-work price, or the time allowed, shall be based on a similar job previously done by men, on piece-work or premium bonus system as the case may be.

7. Where in the establishment in question, there are no data from previous operations to enable the parties to arrive at a piece-work price or time to be allowed, the price or the time to be allowed shall be so adjusted that the women shall receive the same percentage over the time-rate of the class of men customarily employed on the job as such man would have received had he undertaken the job on piece-work or premium bonus system as the case may be.

8. The principle upon which these directions proceed is that on systems of payment by results equal payment shall be made to women as to the men for an equal amount of work done.

9. Piece-work prices and premium bonus basis times shall be fixed by mutual agreement between the employer and the woman or women who perform the work.

10. On piece-work every woman other than a woman to whom paragraph 1 (*b*) relates shall be guaranteed, irrespective of her piece-work earnings, the time-rate prescribed by paragraph 1 (*a*) (i), or where special circumstances exist such higher time-rate as the Minister of Munitions may direct. Every woman to whom paragraph 1 (*b*) relates shall be guaranteed the time-rate prescribed by paragraph 1 (*b*).

Debit balances shall not be carried forward beyond the usual weekly period of settlement.

11. On premium bonus systems every woman other than a woman to whom paragraph 1 (*b*) relates shall, in all cases, be paid the time-rate prescribed by paragraph 1 (*a*) (i), or where special circumstances exist, such higher time-rate as the Minister of Munitions may direct. Every woman to whom paragraph 1 (*b*) relates shall, in all cases, be paid the time-rate prescribed by paragraph 1 (*b*).

12. Overtime and night shift and Sunday and holiday allowances shall be paid to women employed on piece-work or premium bonus system on the same conditions as customarily prevail in the case of men for time work.

13. Piece-work prices and premium bonus time allowances, after they have been established, shall not be altered unless the means or method of manufacture are changed.

14. All wages and balances shall be paid to women through the Office.

15. For the purpose of these directions, the term " woman " or " women " means a woman or women of the age of 18 years or over, and the term " man " or " men " means a man or men of the age of 18 years or over.

16. Any question which arises as to the interpretation of these directions shall be determined by the Minister of Munitions.

(4) ORDER 447 (July, 1916).

DIRECTIONS RELATING TO THE REMUNERATION OF WOMEN AND GIRLS ON MUNITION WORK OF A CLASS WHICH PRIOR TO THE WAR WAS NOT RECOGNISED AS MEN'S WORK IN DISTRICTS WHERE SUCH WORK WAS CUSTOMARILY CARRIED ON.

1. Where women or girls are engaged on Munition work of a class which prior to the war was not recognised as men's work in districts where such work was customarily carried on, the time rates for piece-workers and premium bonus workers shall be as follows :—

Workers	18 years and over	..	4d. per hour.
,,	17 ,, ,, under 18	..	3½d. ,,
,,	16 ,, ,, ,, 17	..	3d. ,,
,,	under 16 years	..	2½d. ,,

2. The rates for such women and girls when customarily on time shall be as follows :—

Workers	18 years and over	..	4½d. per hour.
,,	17 ,, ,, under 18	..	4d. ,,
,,	16 ,, ,, ,, 17	..	3½d. ,,
,,	under 16 years	..	3d. ,,

3. Women and girls in danger zones shall be paid ½d. per hour in addition to the above rates. Allowances for other processes which are dangerous or injurious to health will be decided on the merits of such cases.

4. The appropriate time-rate shall, in the case of any woman or girl on piece-work, be guaranteed irrespective of her piece-work earnings. Debit balances shall not be carried forward from one week to another.

5. On premium bonus systems every woman's and girl's appropriate time-rate shall in all cases be paid.

6. Women or girls shall not be put on piece-work or premium bonus systems until sufficiently qualified. The period of qualification should not generally exceed four weeks.

7. The above rates shall be recognised as war rates, and as due to and depending on the exceptional conditions resulting from the present war.

8. The foregoing rates shall not operate to prejudice the position of any person who has better terms and conditions, nor prevent employers from recognising special ability or responsibility.

9. For the purpose of this Schedule the term " men " means males of 18 years of age and over.

10. Any question which arises as to the interpretation of these provisions shall be determined by the Minister of Munitions.

(5) **ORDER 9 (January, 1917).**

DIRECTIONS RELATING TO THE REMUNERATION OF WOMEN AND GIRLS ON MUNITION WORK OF A CLASS WHICH PRIOR TO THE WAR WAS NOT RECOGNISED AS MEN'S WORK IN DISTRICTS WHERE SUCH WORK WAS CUSTOMARILY CARRIED ON.

1. Where women or girls are engaged on munitions work of a class which prior to the war was not recognised as men's work in districts where such work was customarily carried on, the time-rates for piece-workers and premium bonus workers shall be as follows :—

	Per hour.
Workers 18 years and over ..	.. 4d.*
,, 17 ,, ,, under 18 ..	.. 3½d.
,, 16 ,, ,, ,, 17 ..	.. 3d.
,, 15 ,, ,, ,, 16 ..	.. 2½d.
,, under 15 years ..	.. 2d.

2. The rates for such women and girls when customarily on time shall be as follows :—

	Per hour.
Workers 18 years and over ..	.. 4½d.†
,, 17 ,, ,, under 18 ..	.. 4d.
,, 16 ,, ,, ,, 17 ..	.. 3½d.
,, 15 ,, ,, ,, 16 ..	.. 3d.
,, under 15 years ..	.. 2½d.

3. Women and girls in danger zones shall be paid ½d. per hour in addition to the above rates. Allowances for other processes which are dangerous or injurious to health will be decided on the merits of such cases.

4. In an establishment in which a custom prevailed prior to the war of differentiating between the rates of wages paid to women and girls employed in warehouses and those otherwise employed, an application may be made to the Minister of Munitions for special directions as to the rates of wages to be paid to women and girls employed in warehouses.

5. Women and girls may be rated at ½d. per hour less than their appropriate time-rate under these directions for probationary periods not exceeding :—

In the case of workers of 18 years and over ..	1 month.
,, ,, ,, 16 ,, under 18	2 months.
,, ,, ,, under 16 years ..	3 months.

Such probationary periods shall be reckoned from the date when women or girls are first employed, and no woman or girl shall be called upon to serve more than one probationary period.

* The rate is raised to 4¾d., and the scale in proportion, after the April advance, 1917.

† The rate is raised to 5½d., and the scale in proportion, after the April advance, 1917.

6. The appropriate time-rate shall, in the case of any woman or girl on piece-work, be guaranteed irrespective of her piece-work earnings. Debit balances shall not be carried forward from one week to another.

7. On premium bonus systems every woman's and girl's appropriate time-rate shall in all cases be paid.

8. Women or girls shall not be put on piece-work or premium bonus systems until sufficiently qualified. The period of qualification should not generally exceed four weeks.

9. Additional payment in respect of overtime, night shift, Sunday, or holiday work shall be made to women and girls employed on munitions work of a class, which, prior to the war, was not recognised as men's work in districts where such work was customarily carried on. Such additional payments shall be made in accordance with the custom of the establishment for the class of workpeople concerned in cases where such a custom exists. Where no custom providing for such additional payment exists in the establishment, such additional payments shall be made at the rates and on the conditions prevailing in similar establishments or trades in the district. Where there are no similar establishments or trades in the district, the rates and conditions prevailing in the nearest district in which the general industrial conditions are similar shall be adopted. In the absence of any custom prevailing in the establishment, or in the district, or elsewhere, such additional payments shall be made at such rates and on such conditions as the Minister of Munitions may direct.

10. Piece-work prices and premium bonus basis times shall be such as to enable a woman or girl of ordinary ability to earn at least 33⅓ per cent. over her time-rate, except in the case of an establishment where an application that this provision should be dispensed with either generally or as regards any particular class of workpeople has been approved by the Minister of Munitions.

11. The above rates and conditions shall be recognised as war rates and conditions, and as due to and depending on the exceptional circumstances resulting from the present war.

12. The position of any person or persons whose existing rates of remuneration exceed the rates herein prescribed, shall not be prejudiced by this Order either by a reduction in existing rates or by replacement by another person or other persons at lower rates, nor shall employers be prevented from recognising special ability or responsibility.

13. For the purpose of this Schedule the term " men " means males of 18 years of age and over.

14. Any question which arises as to the interpretation of these provisions shall be determined by the Minister of Munitions.

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